

Foreword

Welcome aboard your new Pearson 36 Cutter. We are proud to have you join the thousands of other Pearson owners, and hope you will find this manual helpful and informative.

Your decision to own a Pearson Yacht is a source of great satisfaction to us, and we are confident your new boat will provide the same satisfaction for you. By selecting a Pearson, you have expressed confidence in us, and you can rest assured that we have made, and will make, every effort to support your trust.

Every Pearson Yacht is manufactured of the finest materials available, by dedicated professionals and craftsmen. It asks only that you treat it as one of the family, and it will return all you can ask of it and more. This manual is intended to guide you through your first few days of ownership, as well as to provide information on care and maintenance that should be of value over the life of the yacht. Individual instruction manuals from the manufacturers of installed equipment are also included where more detailed information is required.

Before getting underway, please take the time to familiarize yourself with the operations and functions of the various systems designed into the Pearson 36 Cutter to ensure proper operation. In the event that additional information is needed, we suggest you consult your dealer or call our Customer Service Department.

Please accept our congratulations. Have fun and smooth sailing!

Sincerely,

PEARSON YACHTS

THE
PEARSON 36 CUTTER
OWNER'S MANUAL

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SECTION 1

INTRODUCTION

1.1 This manual is intended to acquaint the owner with the various features of the yacht as well as to provide information related to the care and upkeep of these features. The manual supplements the literature supplied by the manufacturers of the systems and devices installed in the yacht, and wherever practicable refers to this literature. It is recommended that the literature supplied by manufacturers be retained and the instructions therein followed.

1.2 The manual is divided into four basic sections followed by warranty information and a parts supplement.

Section 1, this section, contains a brief description of the contents and format of the manual.

Section 2 of the manual covers the procedures that should be followed when commissioning the yacht. It includes the procedures that should be followed by the dealer at time of commissioning, as well as those items (such as safety equipment) that are the owner's responsibility. This section of the manual should also prove useful in subsequent recommissionings after periods of layup.

Section 3 of the manual describes the various systems used on the yacht. Reference is made to manufacturers' instructions such as the engine manual whenever installations vary from the general conditions assumed in the manufacturers' instructions.

Section 4 provides a maintenance summary covering the procedures that should be followed to maintain the beauty and service ability of the yacht. There are three subsections; routine maintenance, laying-up procedures, and fitting-out procedures. Whenever feasible, reference is made to the appropriate manufacturer's literature.

The warranty and parts information located in the back of the manual, should be read carefully. This information along with the warranty and parts information supplied by manufacturers of the systems installed, will help maintain the yacht and all of its systems.

SECTION 2

COMMISSIONING

2.1 INTRODUCTION

2.1.1 The first commissioning of a yacht is essentially the start of the yacht's life, and the importance of proper commissioning procedures at this time cannot be overestimated. The first commissioning procedure will be performed by dealer personnel, and requires no owner participation other than for the owner to concern himself with items such as sails, and safety equipment that are considered to be his responsibility. Items of owner responsibility are further delineated in paragraph 2.4 of this section.

2.1.2 Complete lists of the pre-launch, and post launch checks employed during commissioning are provided in this section for those owners interested in understanding the commissioning procedure, as well as for future use in any recommissionings that may be required after periods of wet or dry storage. The lists assume performance by persons cognizant of the procedures that are required, and do not attempt to provide step-by-step instructions. Detailed procedures are available in section 3 of this manual and in the engine manual and other manufacturer's instructions that are provided with the yacht.

2.1.3 The factory installed optional equipment, and items of owner responsibility that require attention during commissioning are included in the list, with the optional items marked with an asterisk (*), and the items involving owner responsibility marked with a double asterisk (**).

2.2 PRE-LAUNCH CHECKS

2.2.1 HULL INSPECTION. Check topsides, decks, and all interior spaces for cleanliness and proper finish. Make certain that all foreign matter has been removed from the bilge areas, and check the following specified items:

- * a. Thru-hulls associated with optional equipment in place.

- * _____
- * _____
- * _____
- * _____

- b. All thru-hull valves lubricated and closed, all hose clamps tight. _____
- c. Propeller nuts and cotter pin properly made up. _____
- d. Steering gear and rudder operational. _____
- e. Strut bearing satisfactory. _____
- f. Anti-fouling bottom paint applied. _____

2.2.2 MACHINERY INSPECTION. Make an overall inspection of the machinery spaces. Ensure that they are free of loose material that might interfere with machinery operation, and then check the following items:

- a. Engine installation work completed. _____
- b. Engine oil, transmission fluid and coolant levels satisfactory. _____
- c. All electrical switches OFF. _____
- d. Batteries fully charged, tied down, connected, electrolyte at proper level. _____
- * e. Installation of optional equipment completed. _____

110 Volt Converter _____

Refrigeration _____

- f. All fuel and LPG valves CLOSED. _____
- g. Adequate amount of fuel in tank. _____

2.2.3 BEFORE MASTS ARE STEPPED. Check the following items:

- a. Shrouds, stays, spreaders, installed and properly secured to mast. _____
- b. Masthead light and spreader lights operational. _____
- * c. Mast mounted instrument units operational. _____

- * d. VHF antenna installed. _____
- e. All chafe points on mast properly taped. _____
- f. Mast boot slipped onto mast and secured. _____
(see figure 3.1-8)

2.2.4 EQUIPMENT ON BOARD. Check the following items:

- a. Winch handles, emergency tiller, and bilge pump handles. _____
- ** b. Ground tackle. _____
- ** c. Dock lines and fenders. _____
- ** d. Safety Equipment
 - PFDS (life preservers) _____
 - Throwable horseshoe or ring buoy _____
 - Horn _____
 - Ship's bell _____
 - Emergency signals (flares etc.) _____
 - Fire extinguishers _____
- ** e. Medical kit. _____
- ** f. Spares and tool kit. _____

2.3 POST LAUNCH CHECKS

2.3.1 HULL INSPECTION. Make an overall inspection of the hull interior. Check bilge areas for evidence of major leaks near thru-hulls, and then make the following specific checks:

- a. Open all thru-hull seacocks. Check each valve and associated hoses, couplings, etc. _____
- b. Check propeller shaft packing gland for nominal adjustment. Unless major leaking is observed, defer adjustment until paragraph 2.3.2, step f. _____
- c. Check shaft alignment, align if necessary, connect coupling. _____

2.3.2 ELECTRICAL AND MACHINERY INSPECTION. Make the following checks:

- a. Check the 12 volt supply at the electrical panel with the battery switch in the #1 and #2 positions. _____
- b. Make an operational check of all DC circuits connected to the electrical panel. _____
- c. Connect the shore power cable, close the 30 amp breaker, and make an operational check of the following:
 - 110 volt receptacles _____
 - Hot water heater _____
 - * Converter _____
 - * Other AC equipment _____
- d. Tie down the yacht securely and operate the engine at low speeds in forward and reverse. Check throttle and shift controls, engine operation. _____
- e. Check the fuel system for leakage. _____
- f. Recheck the shaft packing gland for proper adjustment. Adjust if necessary. _____
- g. Install and check the operation of the emergency tiller. _____

2.3.3 RIGGING AND SAILS. Check the following after the mast is in place:

- a. All standing rigging complete and in place, dockside tuning completed. _____
- b. Mast boot installation completed. _____
- c. All cotterpins in place and taped. _____
- d. Running rigging in place. _____
- ** e. Sails hoisted to check fit. _____

2.3.4 PLUMBING. Check the following:

- a. Water tanks full, no leaks. _____
- b. Pressure water system operational. _____
- c. Water foot pump operational. _____

- d. Hot water system operational. _____
 - e. Shower operational. _____
 - f. Salt water galley pump operational. _____
 - g. Sump pump operational. _____
 - h. Manual bilge pump operational. _____
 - i. Electric bilge pump operational. _____
- 2.3.5 GALLEY. Check the following:
- a. LPG valve, tank and gauge functioning properly. _____
 - b. Galley stove operational. _____

2.4 OWNER RESPONSIBILITY

2.4.1 A number of items that must be considered during commissioning are the responsibility of the owner. For example, the brands, types and cuts of sails are so dependent on the intended use of the yacht, and on individual preference that it is best left to the owner and the selected sailmaker. Some additional items of owner responsibility are briefly described in the following paragraphs.

2.4.2 REQUIRED SAFETY EQUIPMENT. The current U. S. Coast Guard requirements for a vessel the size of the Pearson 36 Cutter call for the following safety equipment (minimum requirement).

- a. PFDs (life jackets). One type I, II, or III PFD for each person on board. Type I is recommended for off-shore cruising, and type II is satisfactory for in-shore work. Although legally acceptable, the type III PFD is more suitable for sports activities. A must, one PFD on board per person.

WARNING!

TO BE EFFECTIVE, A PFD MUST FIT PROPERLY. IT WOULD BE PRUDENT TO KEEP A FEW EXTRA CHILD SIZE JACKETS ON BOARD FOR SMALL VISITORS.

- b. Fire Extinguishers. Two type B-I or one type B-II extinguishers for a yacht without fixed fire extin-

guishers in the machinery space. With fixed extinguishing equipment, one type B-I extinguisher meets legal requirements, but an extra one would be greatly appreciated by anyone attempting to fight a fire.

- c. Horn. A hand or power operated horn capable of producing a blast of at least 2 seconds duration and audible for at least one mile.
- d. Bell. One ship's bell capable of producing a clear bell-like tone.
- e. Distress Signals. Visual distress signals suitable for day and night use must be carried. Although the law can be satisfied by simply carrying 3 hand-held day-night flares, it is recommended that more attention be devoted to this subject. A flare pistol capable of firing meteor and parachute flares with a generous supply of flares is excellent for night use, with smoke cannisters being a good supplement for bright sunlight.

CAUTION

GOVERNMENT REGULATIONS ARE ALWAYS SUBJECT TO CHANGE. IT IS THE OWNER'S RESPONSIBILITY TO BE COGNIZANT OF CURRENT REGULATIONS AND TO ENSURE THAT HIS VESSEL IS PROPERLY EQUIPPED.

2.4.3 GROUND TACKLE. The following suggestions are provided as a general guide, and should be revised to suit the areas in which the yacht is to be sailed and the individual preferences of the owner:

A 35-pound plow anchor with 20 feet of 3/8 BBB chain, and 200 feet of 5/8, 3-strand nylon for serious anchoring, and a 20-pound Hi-tensile Danforth with 10 feet of 3/8 BBB chain and 150 feet of 1/2-inch, 3-strand nylon.

2.4.4 MEDICAL KIT. Every yacht should have a medical kit, tailored to the specific needs of each owner. Items in the kit should range from aspirin, motion sickness tablets, and first-aid materials, to medication that may be used regularly by crew members. If extensive off-shore work is contemplated, the advice of a physician should be obtained regarding additional medical supplies.

2.4.5 TOOLS AND SPARE PARTS. Any well found yacht should carry tools and spare parts. As is the case with

most items of owner responsibility, the make up of the tool kit, and the stock of spares is subject to variation. A yacht that is to be sailed under purely local conditions, with professional help called in for most, if not all repairs, needs only minimal tools or spare parts aboard; while a yacht intended for long range cruising should carry tools and material for any contingency.

2.4.5.1 The prime sources for specific information concerning spare parts for the machinery aboard the yacht are the manufacturer's instructions and manuals that are supplied with the yacht. Some additional suggestions are listed below:

TOOL KIT

- a. Wrenches (open and box) from 3/8" to 3/4".
- b. Two adjustable wrenches with 2½" jaws (for shaft packing gland).
- c. Assortment of hammers (large and small).
- d. Assortment of screwdrivers (standard and Phillips).
- e. Pliers (standard, long nose, vise grip).
- f. Scissors.
- g. Hacksaw (several spare blades).
- h. Wire cutter.
- i. Sail repair kit.
- j. Socket wrenches (same sizes as box wrenches).

SPARE PARTS

- a. Standing rigging repair materials such as cotter pins, turnbuckles, stainless wire, clevis pins.
- b. Running rigging and sail repair materials such as blocks, extra line, sail slides, and duct tape.
- c. Miscellaneous items such as hose clamps (assorted sizes), electrical tape, screws, bolts, nuts and washers.
- d. Spare electrical bulbs for running lights, binna-cle, etc.

SECTION 3

YACHT SYSTEMS

3.1 SPARS AND RIGGING

3.1.1 GENERAL DESCRIPTION. The Pearson 36 Cutter is a split headstay yacht with a traditional cutter rig (figure 3.1-1). A rig of this type is particularly amenable to short-handed sailing, while at the same time possessing the qualities and capabilities that allow it to match performance with any other rig. Under main and club jib, the sails are self-tending, while a yankee or jib top, plus additional options such as a furling genoa can add enough versatility to satisfy any sailor.

3.1.1.1 The mast is stepped through the deck and includes a mast tie-rod assembly that provides bracing between the deck partner and the mast step. The tie rod is adjusted during the first commissioning and should require no further attention. Figure 3.1-2 illustrated this assembly and describes its adjustment.

3.1.1.2 A single spreader system is used, with single upper shrouds (port and starboard) secured to the chainplates athwartship of the mast, and fore and aft lower shrouds (port and starboard) secured to the chainplates fore and aft of the mast. A headstay and an inner forestay provide forward support for the mast as well as support for the headsails. A main backstay, and two running backstays complete the mast support system. The running backstays are normally secured at one of two points on deck. The forward position at the gate braces (see deck plan), is used for light to moderate wind conditions, and is far enough forward to stay clear of the main boom. The aft backstay position is used under heavier conditions, and makes use of the running backstay slides. This requires that the lee stay be shifted to clear the boom when on a reach or a run.

3.1.1.3 The mainsail makes use of a fixed gooseneck assembly with two internal jiffy reefing lines. Figures 3.1-3 and 3.1-4 illustrates the outhaul and jiffy reefing systems. Figure 3.1-5 illustrates the method of reeving the mainsheet, and figure 3.1-6 illustrates the masthead assembly.

3.1.2 DOCKSIDE TUNING. The Pearson 36 Cutter is delivered to the owner in as near ready to sail condition as possible, with all basic tuning completed at time of commissioning. However, a basic tuning procedure has been included in this section to assist the owner in future tuning procedures.

3.1.2.1 Before Masts Are Stepped. Perform the following steps:

- a. Adjust all turnbuckles to an extended position to facilitate their attachment when the mast is stepped. Make certain that the turnbuckle is installed with the clockwise threads in what will be the down position when it is in place.
- b. Ensure that all turnbuckles are equipped with toggles at their base in order to eliminate bending loads on the swage fittings, and on the turnbuckle threads. Make certain that the headstay and the inner forestay have a toggle at both ends.
- c. Place the mast boot assembly onto the mast. Make certain that the boot assembly is up far enough to avoid interference when placing the mast into the yacht. Temporarily secure the boot assembly in this position.

3.1.2.2 Mast Adjustment. With the mast stepped and centered in column over the mast step, and with the wedges in place (figure 3.1-7), adjust the headstay (jibstay), backstay, and upper shrouds to a taut condition by turning the screws clockwise.

3.1.2.3 Check and adjust mast rake by performing the following steps:

- a. Hang a weight such as a hammer, wrench, or even a bucket of water from the main halyard, just below gooseneck level. The fore and aft distance between the halyard and the mast, at the gooseneck, is the amount of rake.

NOTE

THE PEARSON 36 CUTTER IS DESIGNED TO CARRY APPROXIMATELY 8 INCHES OF RAKE. THIS MAY BE VARIED TO SATISFY THE PREFERENCES OF SAILMAKERS, BUT FORWARD RAKE SHOULD BE AVOIDED.

- b. Adjust the headstay, and the backstay turnbuckles (let off on one, take up on the other) until the desired rake is achieved. Make certain that the lower shrouds, the inner forestay, and the running backstays are slack enough so as not to interfere with this adjustment.
- c. Pin the headstay and backstay turnbuckles.

3.1.2.4 Perform the following steps to ensure that the mast is in the center of the boat, and perpendicular to the designed transverse waterline:

- a. Ensure that the inner forestay, the lower shrouds, and the running backstays are slack enough so as not to interfere with the following adjustments:
- b. Lead the shackle end of the main halyard to an identifiable point on the rail or chainplate. Adjust the halyard tension so that the shackle just touches this point, and then cleat the halyard.
- c. Lead the halyard to the same location on the opposite side of the deck, and check if the shackle touches the same point with the same tension. If this is not the case, let off one upper shroud turnbuckle and take up on the other to get the desired result.
- d. With the mast centered transversely, tighten both upper shrouds uniformly, one full turn on one side, then one full turn on the other. Repeat until the turnbuckles become properly tight. Pin the upper shroud turnbuckles.
- e. Tighten the inner forestay and lower shroud turnbuckles to a hand tight condition, then sight up the mast in the fore and aft, and in the athwartship directions to check for straightness. Make appropriate adjustments to the inner forestay and the four lower shroud turnbuckles if this is not the case.
- f. Pin the inner forestay and lower shroud turnbuckles.
- g. Make certain that the mast wedges are tight, and install the mast boot (figures 3.1-7 and 3.1-8).

3.1.3 UNDERWAY TUNING. Underway tuning for the Pearson 36 Cutter should be performed in two or more stages depending on the sail inventory. First, with main and forestaysail set, and with the backstays in the forward posi-

tion, light to moderate tension on the windward running backstay should prevent excessive sag on the inner forestay, and the mast should remain straight. Lack of straightness on the upper section of the mast would be adjusted by the upper shrouds. Bending in the lower section of the mast, or inner forestay, would be corrected with the lower shrouds. If adjustment is indicated, go on the opposite tack so that the shrouds are more easily adjusted, and be sure to make equal and corresponding adjustments on each set of turnbuckles (a one turn take up on the port upper shroud should be followed by a one-turn easing on the starboard upper shroud etc.). Always tack both directions to ensure straightness.

3.1.3.1 When the preceding adjustments have been completed, the process should be repeated with the rest of the sail inventory and with the running backstays set in the aft position.

3.1.3.2 The rake of the mast will effect the amount of "weather helm". Weather helm increases as the mast is raked aft, and decreases as the rake is reduced. Final adjustments to rake should provide a slight weather helm in moderate wind conditions.

3.1.4 CARE AND MAINTENANCE. The spars, rigging and associated hardware constitute the main system of propulsion for the yacht, and though selected for ease of maintenance and durability, require a certain amount of care and maintenance if proper performance over an extended period of time is to be expected. The following comments are intended as initial guidelines. Complete procedures and schedules should fit the use of the yacht.

3.1.4.1 Rigging and Lines.

- a. Clean wire rope, swage fittings, toggles, etc. with fresh water and, if desired, a water soluble detergent. Use a stiff brush or nylon scrubbing pads. Do not use steel wool or cleansers containing chlorine.
- b. Do not wrap wire rope with tape, plastic or other adhesive material. Such a covering can exclude oxygen needed to maintain a passive surface on the wire. This can advance corrosive or deteriorating action.
- c. When storing shrouds, stays, or halyards, wash with fresh water, dry with a clean cloth, and store in a dry location away from chemicals, oils, or other contaminates. Avoid crushing, kinking, or coiling too tightly.

- d. Synthetic rope will deteriorate with prolonged exposure to salt and sun. Rinsing with fresh water is beneficial, as is an occasional soaking in warm soapy water. Rinse and dry thoroughly before stowing.

NOTE

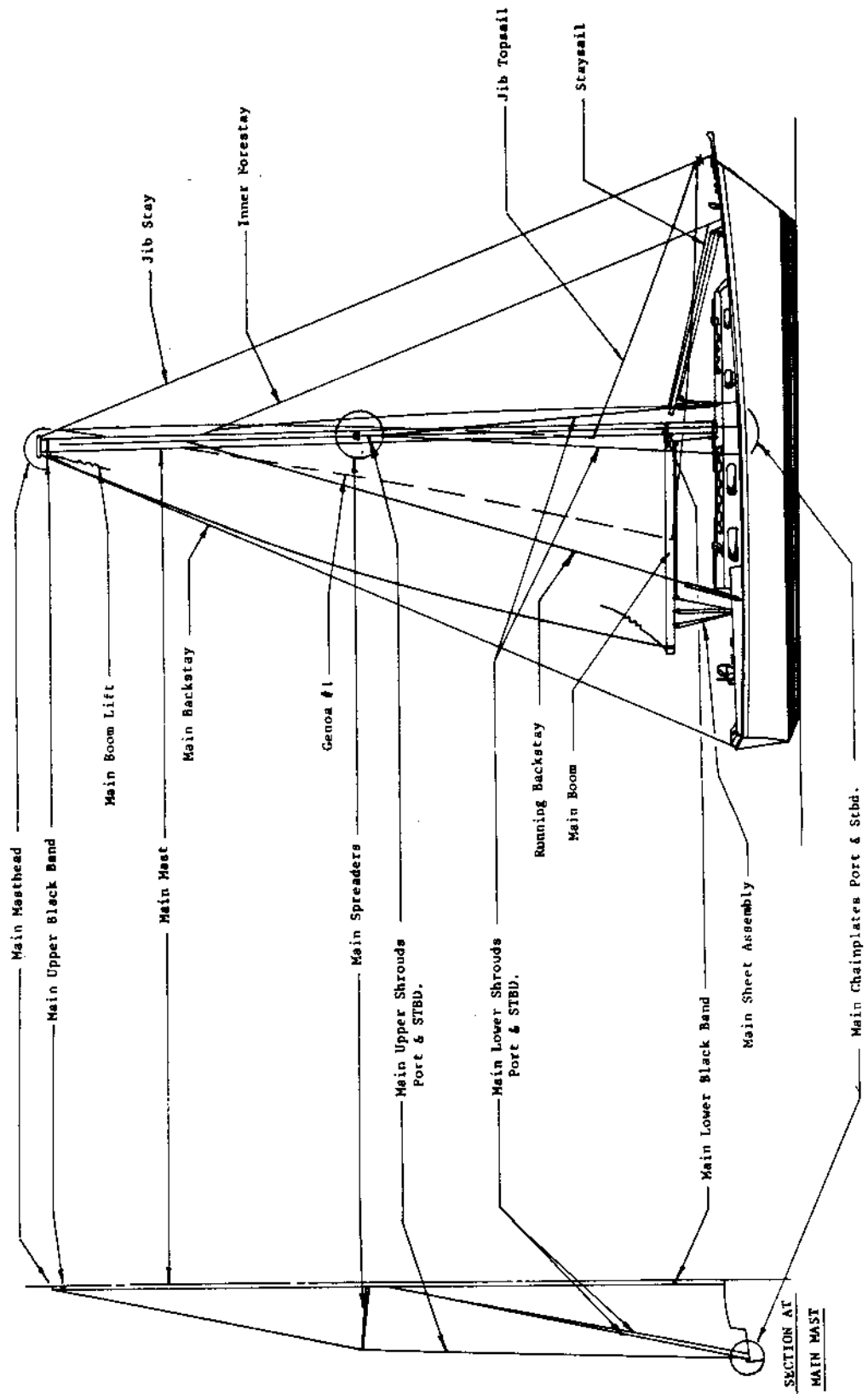
AN EXCELLENT WAY TO CLEAN SYNTHETIC ROPE IS TO RUN IT THROUGH A WASHING MACHINE SET ON A WARM CYCLE. FOR THE WELFARE OF BOTH THE SYNTHETIC ROPE AND THE WASHING MACHINE, MAKE CERTAIN IF THIS IS DONE, THAT THE CONSTRUCTION OF THE WASHING MACHINE IS SUCH THAT IT IS NOT POSSIBLE FOR THE ROPE TO SLIP BEHIND THE BASKET.

- e. A regular, ongoing check should be made on all standing and running rigging, with emphasis on the following:
- (1) Evidence of fraying, chafing, kinking.
 - (2) Cotterpins and other hardware secure and taped.
 - (3) Evidence of stress or cracking around swaged terminals.

3.1.4.2 Winches. A servicing booklet for the winches installed in the Pearson 36 Cutter is provided at commissioning. The winches should be inspected, cleaned and lubricated in accordance with the instructions in the booklet.

FIGURE 3.1-1

PEARSON 36 CUTTER
RIGGING SCHEMATIC



SECTION AT
MAIN MAST

FIGURE 3.1-1
Rigging Schematic
Pearson 36 CUTTER

FIGURE 3.1-2

P-36 CUTTER
MAST TIE ROD

Your boat is equipped with a tie rod which runs from the mast collar at the deck partner to the mast step.

The tension should never be over tightened. The nut on deck should be finger tight with the boat at rest and the rigging properly adjusted. (See sketch)

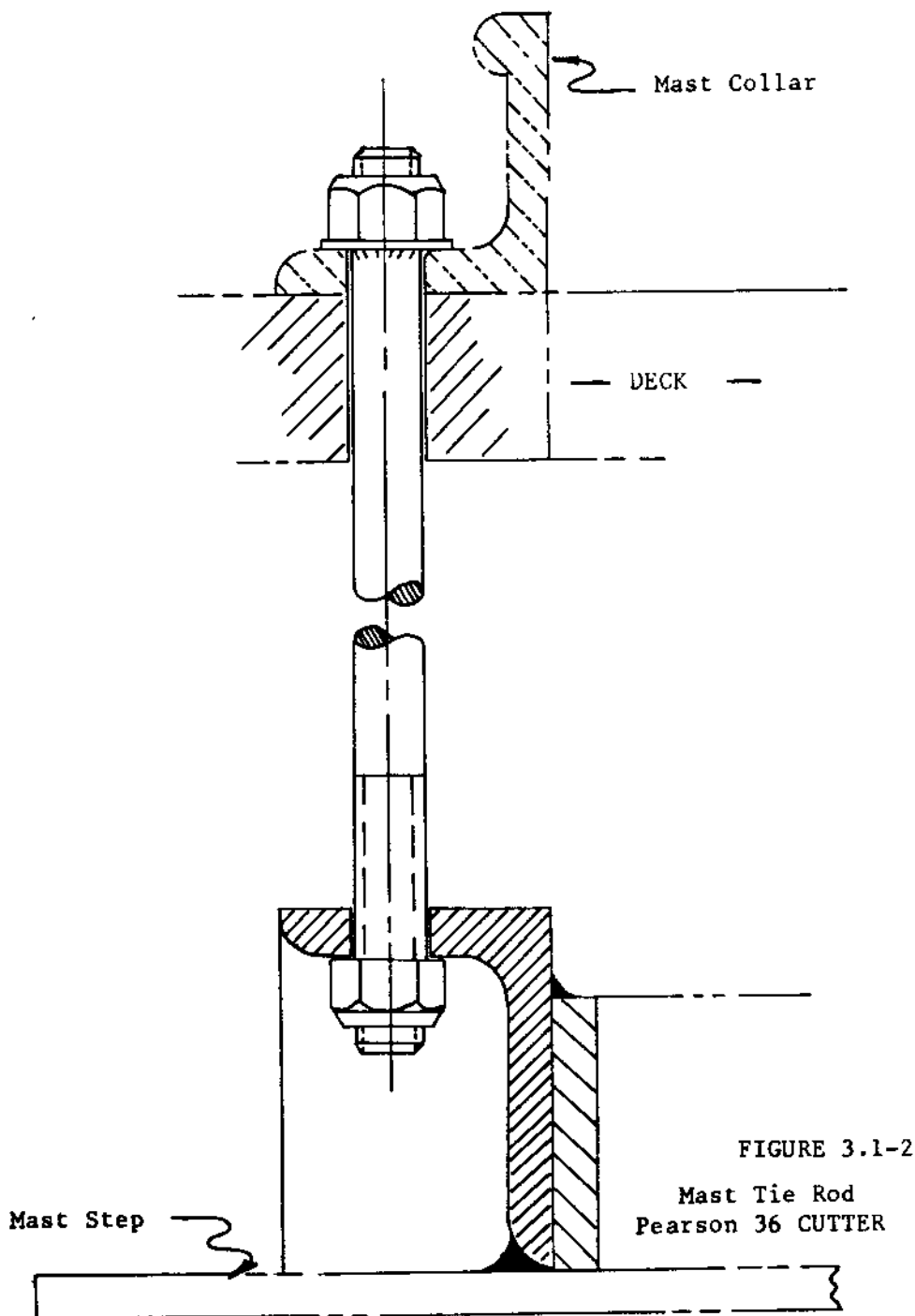
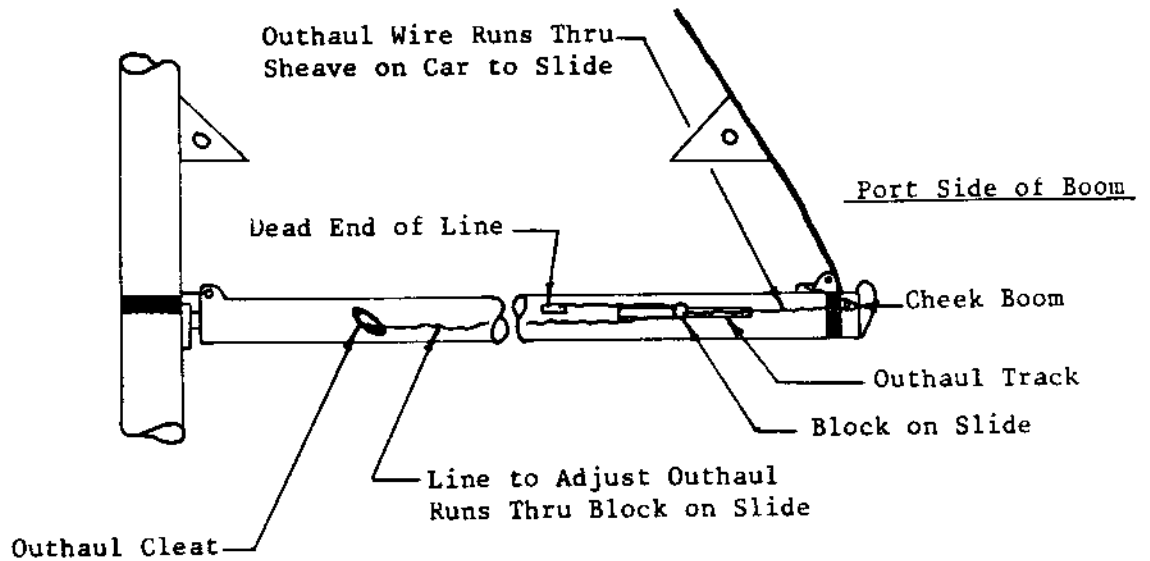
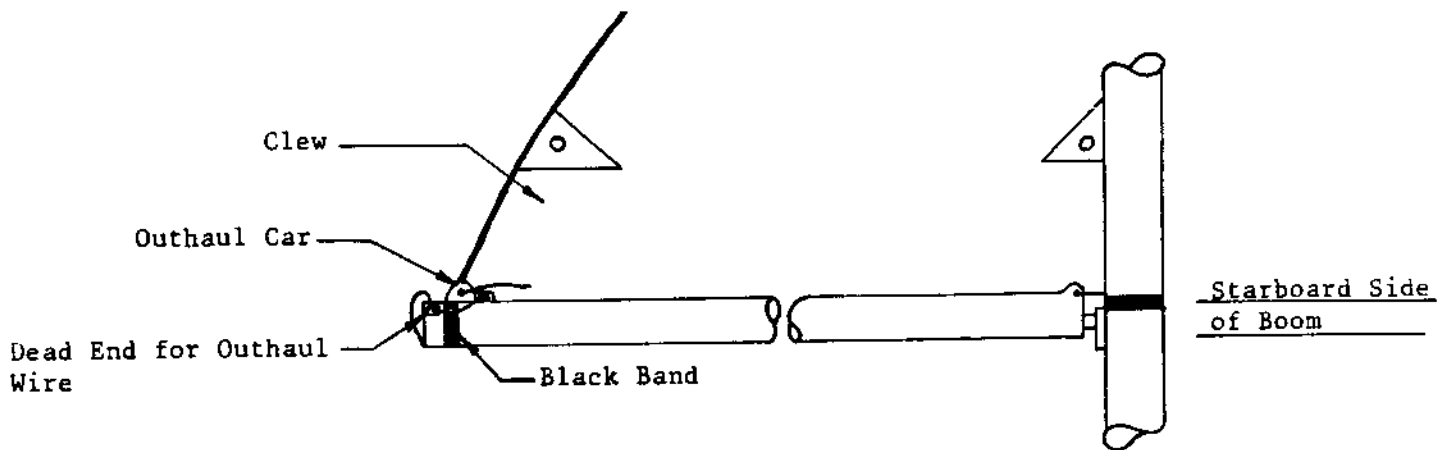


FIGURE 3.1-3

P-36 CUTTER

OUTHAUL



1. Attach outhaul to mainsail clew.
2. Trim main halyard by hauling top of mainsail to black band at the top of mast.
3. Trim outhaul by pulling on line on port side of boom until clew reaches black band at aft end of boom. Cleat outhaul (line) on cleat, port side, at forward end of boom.

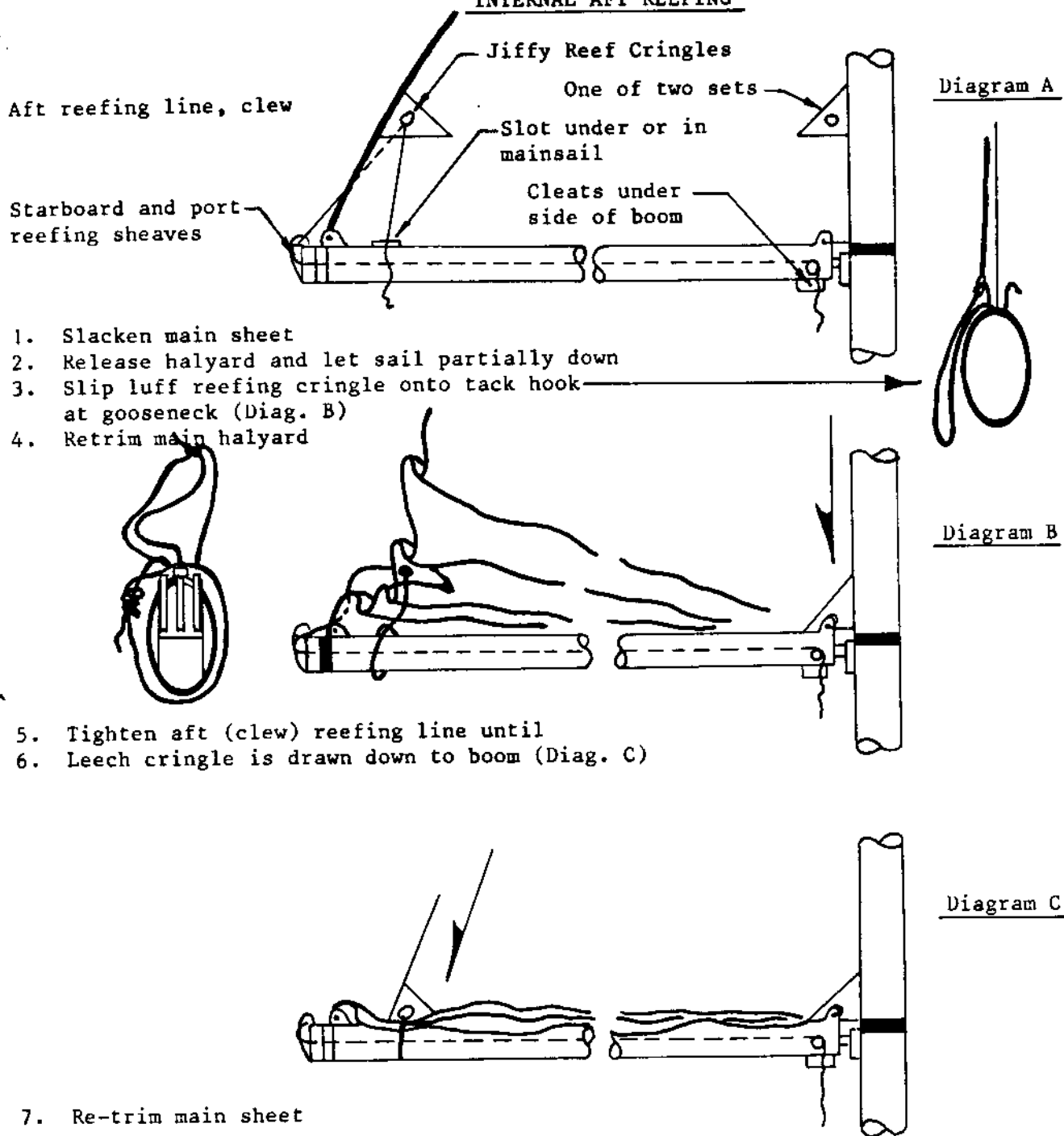
FIGURE 3.1-3

Outhaul

Pearson 36 CUTTER

JANUARY 5, 1981

FIGURE 3.1-4
P-36 CUTTER
JIFFY REEFING
INTERNAL AFT REEFING



NOTE: Operation for second reef is the same as for the first reef.

FIGURE 3.1-4
Jiffy Reefing, Internal Aft Reefing
Pearson 36 CUTTER

FIGURE 3.1-5
P-36 CUTTER
MAIN SHEET REEVING

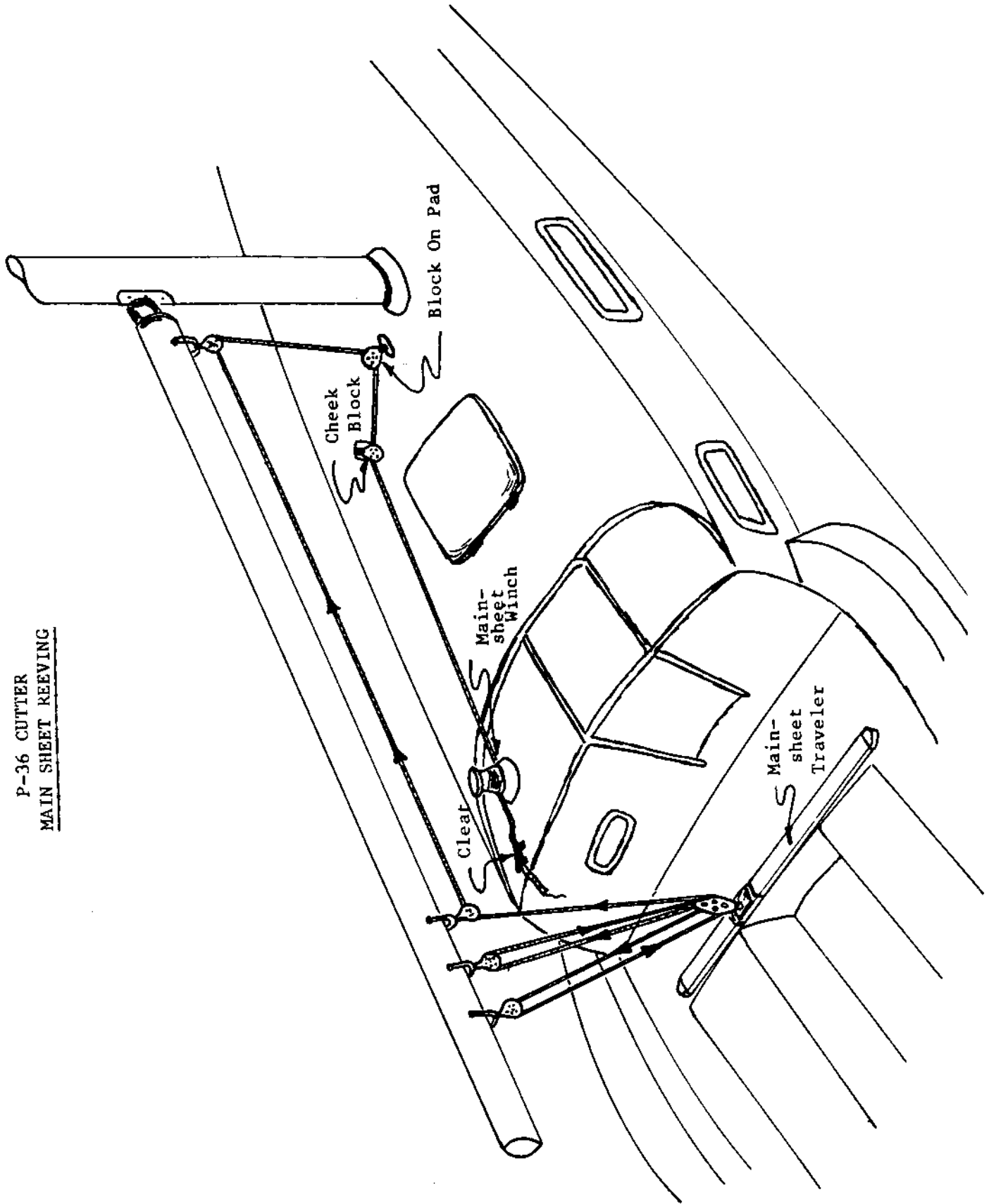


FIGURE 3.1-5
Mainsheet Reeving
Pearson 36 Cutter

FIGURE 3.1-6
P-36 CUTTER
TYPICAL MASTHEAD ASSEMBLY

REVISED: June 4, 1981

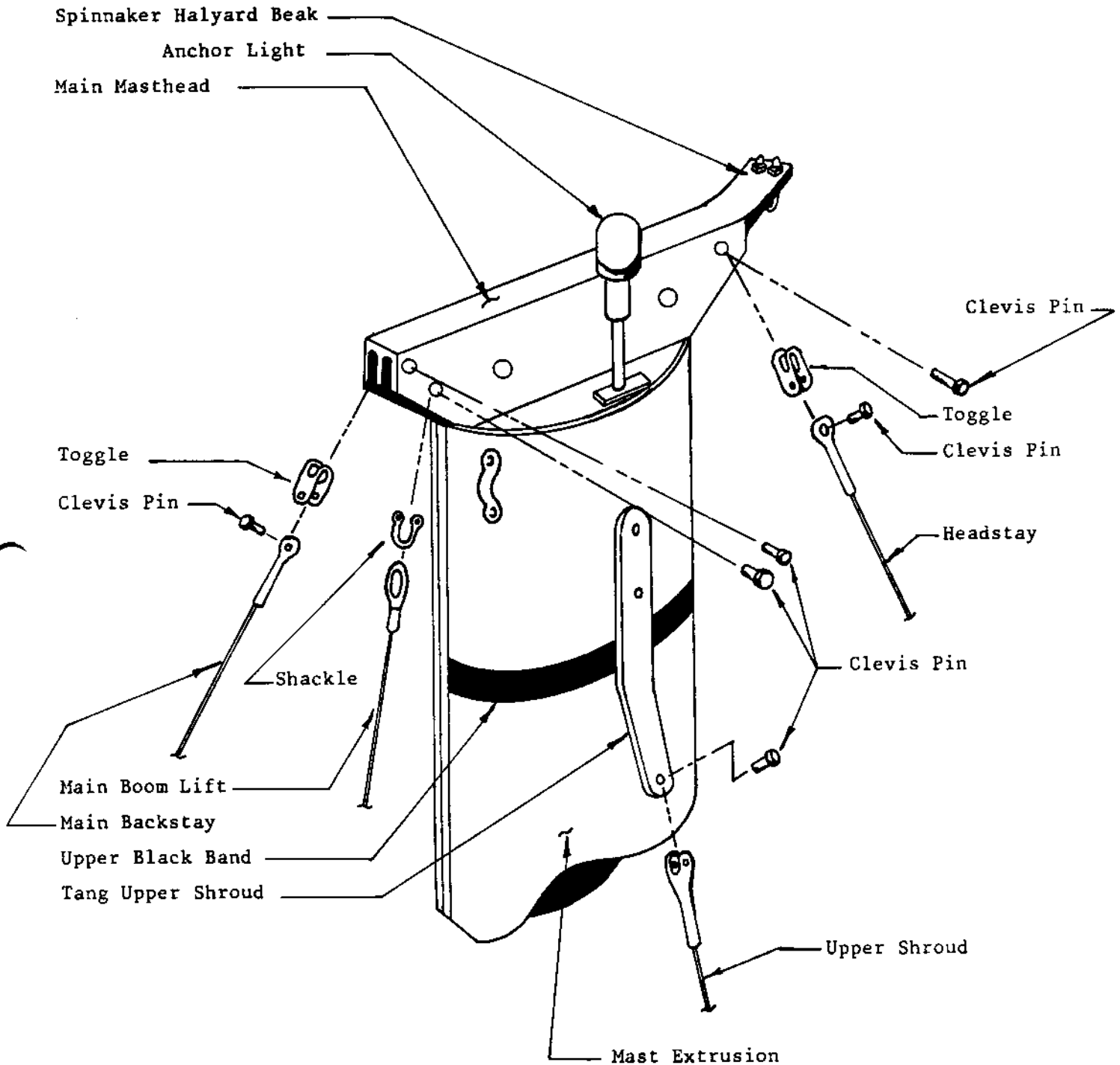
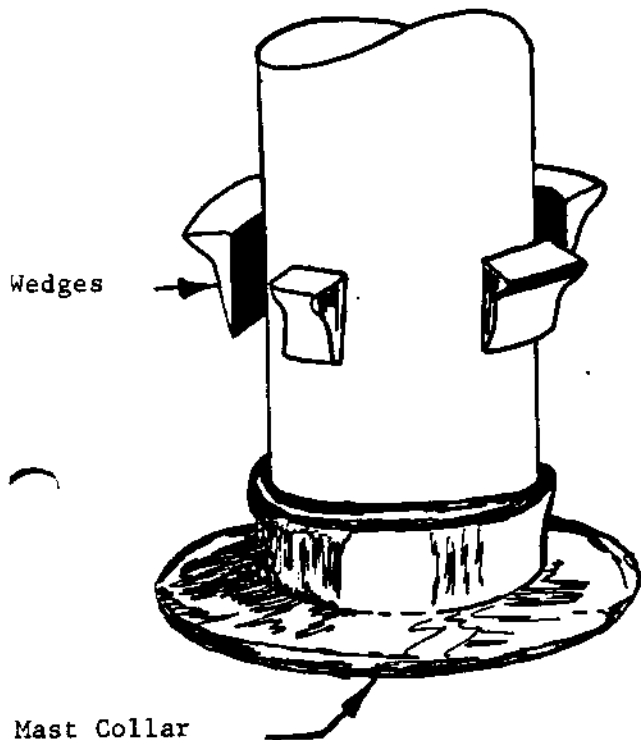


FIGURE 3.1-6
Typical Masthead Assembly
Pearson 36 CUTTER

FIGURE 3.1-7
P-36 CUTTER
MAST WEDGE INSTALLATION



Fit four pieces of mast wedge extrusion snugly between mast extrusion and inside of mast collar. One each forward and aft and one on each side. If loose, place a wide, thick bead of silicone sealant on outer face of wedge, allow to dry, retest fit.

Push down mast wedge between mast and mast collar until top flange hits mast collar. Mallet may be needed. This wedge system should fit very tightly to minimize mast movement.

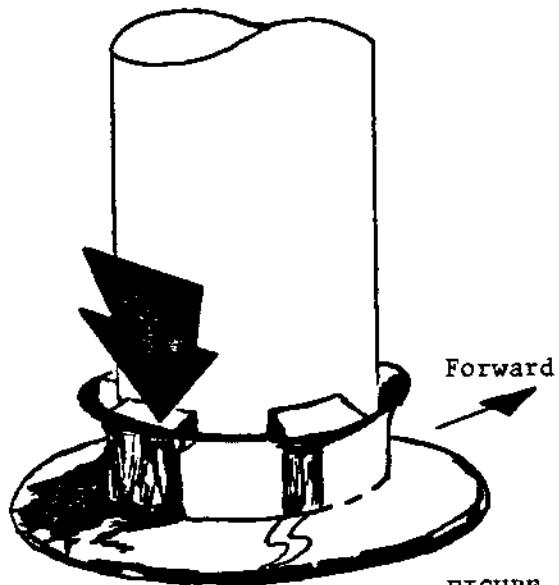
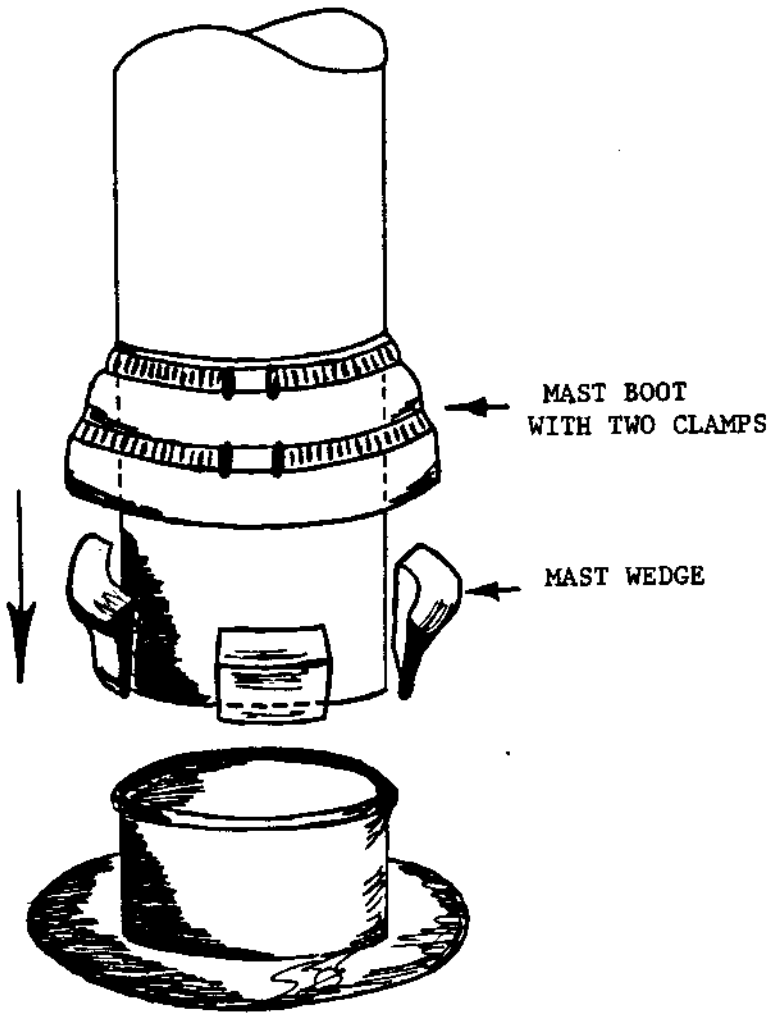


FIGURE 3.1-7
Mast Wedge Installation
Pearson 36 CUTTER

FIGURE 3.1-8
P-36 CUTTER
MAST BOOT INSTALLATION



Mast boot with two clamps to be slipped up onto mast extrusion before stepping mast. After stepping the mast and installing the mast wedges (see sketch) the boot is slipped down into place over the flange on the mast collar and both clamps are tightened sufficiently to provide a water tight joint between the boot and both the mast extrusion and collar.

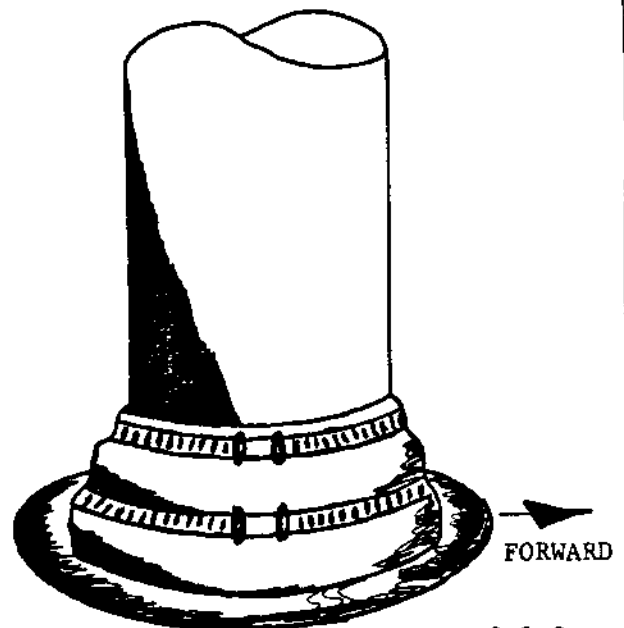


FIGURE 3.1-8
Mast Boot Installation
Pearson 36 CUTTER

3.2 POWER SYSTEM

3.2.1 INTRODUCTION. The heart of the power system installed in the Pearson 36 Cutter is a Universal Atomic Diesel, Model 5444 (44 H.P.). Detailed descriptions of the features of the engine, along with complete operating and maintenance procedures, are provided in the Universal Engine Manual which is supplied at commissioning. The following paragraphs provide a brief overall description of the complete power system installed in the yacht and supply details where the installation varies from the general conditions assumed in the engine manual.

3.2.2 OVERALL DESCRIPTION. The complete power system installed in the Pearson 36 Cutter consists of the following:

- a. A fresh water cooled, Model 5444 diesel engine with a 2 to 1 Vee drive.
- b. A propeller and shaft assembly consisting of a 2 blade 18 (D) X 10 (P) X 1 1/8" R H bronze propeller, an 83 3/4 inch bronze shaft, a cast bronze strut with a CUTLASS bearing, and a shaft packing gland.
- c. A fuel system consisting of a 50 gallon aluminum fuel tank, primary and secondary fuel filters, and a manual shut off valve.

3.2.3 UNIVERSAL ATOMIC DIESEL. The Universal Atomic, Model 5444 diesel is a 44 HP, 4 cylinder, fresh water cooled engine. Features of the engine include a 12 volt, 55 ampere alternator, electric starter, glow plug for cold starts, and a centrifugal governor for speed control. A complete list of engine specifications are listed in the engine manual.

3.2.3.1 Instruments and Alarms. The following instruments and alarms are mounted on the cockpit instrument panel:

- a. An ammeter that reads current into, or out of, the battery circuit (charge or discharge).
- b. A temperature gauge that reads engine coolant temperature (normal range 175° to 190° F).
- c. An oil pressure gauge (0 to 85 lbs.).
- d. An electrical tachometer. This instrument samples the a.c. frequency at the alternator output, and converts this to engine RPM.

- e. An engine alarm buzzer that sounds when oil pressure goes below 14 PSI or engine coolant temperature rises above 190°F.

3.2.3.2 Controls. Controls associated with the engine are located below decks, and in the cockpit as follows:

- a. Dual Battery Switch. Although properly a part of the electrical system, the dual battery switch, located in the main cabin on the after bulkhead, must be energized for engine operation.
- b. Key Operated Switch. The key operated OFF/ON switch located in the companionway next to the electrical panel, controls all electrical power to the engine including power to the electrical fuel pump.
- c. Bilge Blower Switch. The bilge blower switch is the switch labeled BLOWER on the electrical panel.
- d. Throttle and Shift Controls. Push-pull throttle and FORWARD-NEUTRAL-REVERSE controls are located on the Edson steering column.
- e. Starter Button, Pre-heat Button, Engine Shut-down Control. These controls are located on a panel on the starboard side of the cockpit, near the steering column.

3.2.4 FUEL SYSTEM. The fuel system for the Pearson 36 Cutter is illustrated on figure 3.2-1 and consists of a 50 gallon aluminum fuel tank, fuel suction and return lines, a fuel/water separator as a primary fuel filter, a secondary fuel filter on the engine, and an electric fuel pump controlled by the engine key switch.

3.2.4.1 A fuel gauge located on top of the tank is read through a view port in the cockpit sole.

3.2.5 OPERATION. Operation of the Universal 5444 includes preparation for starting, running, stopping, and securing the power system after use. The following paragraphs are intended as a general guide, with complete procedures being more thoroughly covered in the engine manual.

3.2.5.1 Preparation for Starting. While this is a practice often neglected on an auxiliary, a power system should always be inspected before starting. At the very least, an inspection should be made at the start of a cruise, and before starting the engine af-

ter an extended period under sail. The following items should receive particular attention:

- a. Visually inspect the engine space and the engine. Look for fuel and/or water leaks, and any other problems that might preclude starting.

WARNING!

ALTHOUGH LESS VOLATILE, AND FAR SAFER THAN GASOLINE, DIESEL FUEL IS FLAMMABLE, AND A FUEL LEAK CAN CAUSE A SERIOUS FIRE.

- b. Ensure that the sea cock to the heat exchanger is open.
- c. Ensure that fuel valves are open.
- d. Check fuel supply.
- e. Check coolant level in fresh water cooling system.
- f. Check engine oil and Vee drive fluid levels.

NOTE

THE VEE DRIVE DIP STICK IS ACCESSIBLE THROUGH A SMALL HATCH IN THE TRASH BIN LOCKER (TO PORT) NEXT TO THE ICE BOX.

- g. Ensure that the dual battery switch is ON.
- h. Operate the bilge blower for a period of 5 minutes before starting the engine.

WARNING!

FAILURE TO VENTILATE THE ENGINE COMPARTMENT BEFORE STARTING COULD CAUSE A SERIOUS ACCIDENT INVOLVING PERSONAL INJURY AND/OR DAMAGE TO THE YACHT. IN ADDITION TO POSSIBLE FUEL VAPORS, FUMES FROM OTHER SOURCES COULD BE PRESENT.

- i. Ensure that the transmission control is in NEUTRAL.

3.2.5.2 Starting Procedures. Normal starts, cold weather starts, starting procedures after a long shutdown, are covered in detail in the engine manual. The following is a brief summary of engine starting procedures:

a. Normal Start.

1. Energize the key operated OFF/ON switch.
2. Place the throttle in the partially open position.
3. Press the START button.
4. When the engine starts, release the start button and return the throttle to the idle position, check the instrument panel for normal readings.

b. Cold Start.

1. Energize the key operated OFF/ON switch.
2. Place the throttle in the fully open position.
3. Press the preheat button, and hold in for 15 to 20 seconds.
4. While holding in the preheat button, press the starter button.
5. If the engine fails to start in approximately 20 seconds, pause for approximately 30 seconds, and then repeat steps 3 and 4.

CAUTION

THE STARTER MOTOR SHOULD NOT BE ENERGIZED FOR EXTENDED PERIODS (20 SECONDS SHOULD BE SUFFICIENT). ALWAYS ALLOW A REST PERIOD OF APPROXIMATELY TWICE THE CRANKING PERIOD TO ALLOW THE STARTER TO COOL. TO AVOID GLOW-PLUG PROBLEMS THE PREHEAT BUTTON SHOULD ALSO BE ALLOWED COOLING PERIODS.

6. When the engine starts, release the start and preheat buttons and immediately return the throttle to the idle position. Check the instrument panel for normal readings.

3.2.5.3 Forward, Neutral, Reverse. Shifting from one gear position to another should always be performed at low speeds (below 900 RPM). In addition, when shifting from forward to reverse, or vice versa, the lever should be held in the neutral position for a moment before proceeding.

3.2.5.4 Stopping. To stop the engine, pull the STOP control out and hold it out until the engine stops completely. If the situation warrants such action, this may be done at any time. However, under normal conditions, it is recommended that the following procedure be followed:

- a. Slow engine to idle speed.
- b. Place engine in neutral.
- c. Allow engine to idle for a few minutes in order to dissipate the heat generated by operation.
- d. Pull the stop control out and hold it out until the engine stops completely.
- e. Turn the key operated switch to OFF.

3.2.6 FUELING. While employment of a diesel engine results in a greatly reduced fuel hazard when compared to gasoline, it should be remembered that diesel fuel is flammable, and that the employment of good fueling practices are necessary. The following steps are provided as guidelines:

3.2.6.1 Before Starting To Fuel.

- a. Extinguish all smoking materials and check the fueling area for other sources of spark or flame. Remove if found.
- b. Shut off engine, and electrical generator if one is aboard.
- c. Check fuel gauge to determine fuel requirements in order to prevent overfilling.
- d. De-energize all electrical equipment.
- e. Close all hatches and ports.
- f. Ensure that a fire extinguisher is readily available.
- g. Ensure that the proper (diesel not gasoline) hose is about to be used.

WARNING!

DO NOT FUEL DURING ELECTRICAL STORMS. BESIDES THE OBVIOUS HAZARD OF LIGHTNING, THE POSSIBILITY OF STATIC DISCHARGE IS GREATLY INCREASED AT THIS TIME.

3.2.6.2 Fueling Procedure.

- a. Remove fill pipe cover.

WARNING!

USE ONLY THE SPECIAL SPANNER WRENCH PROVIDED. DO NOT USE A HAMMER, SCREWDRIVER, OR OTHER TOOLS WHICH COULD CAUSE A SPARK OR DAMAGE THE COVER.

- b. Place nozzle of fuel hose in the fill pipe.

WARNING!

KEEP THE NOZZLE IN CONTACT WITH THE DECK PLATE RIM DURING FUELING TO AVOID THE POSSIBILITY OF A STATIC SPARK.

- c. Fill slowly. Do not overfill. If it is not possible to see the meter on the fuel pump, the attendant or a crew member should call out the gallonage from the fuel dock.

CAUTION

FUEL VOLUME WILL INCREASE WITH AN INCREASE IN TEMPERATURE. FILLING THE TANK TO ONLY 95% OF CAPACITY WILL AVOID OVERFLOW PROBLEMS ON A HOT DAY.

3.2.6.3 After Fueling.

- a. Replace cover, clean up any spilled fuel. If any rags etc. were used for this purpose dispose of them ashore.
- b. Check below decks for presence of fumes or fuel leakage. Check bilge, engine room, and main cabin.

WARNING!

IF FUMES OR EVIDENCE OF LEAKAGE IS FOUND, DETERMINE THE CAUSE, CORRECT IT, AND CLEAN UP ANY SPILLAGE BEFORE PROCEEDING.

- c. Open all hatches and ports to ventilate the boat.
- d. Switch on battery.
- e. Operate bilge blower for at least 5 minutes. Check blower exhaust for fumes.
- f. The engine should be started only when it is certain that no potentially hazardous condition exists.

3.2.7 OPERATOR MAINTENANCE. Whether maintenance of the power system is to be performed by the owner, or delegated to a mechanic, it is the owner who must first initiate any action that is to take place. He must either perform the maintenance or decide to call someone to do the job, and a working knowledge of the power system is essential in the first case, and desirable in the second. The Universal engine manual is, of course, the prime source for engine information and should be consulted, preferably before the fact. The following paragraphs are included as a supplement to cover any required maintenance procedures that are not a part of the engine manual.

3.2.7.1 Fuel Sanitation. The fact that a diesel engine does not require an ignition system can, and usually does, result in an engine that is far superior to a gasoline engine in regards to dependability. Whether this is actually the case, depends greatly on the cleanliness of the fuel that is supplied to the engine, since the close tolerances required by the engines fuel delivery system make it extremely intolerant of any form of dirt or water contamination. The engine is supplied with primary and secondary filters that prevent contaminants from reaching the engine where they could cause damage, but a clogged filter, although providing this protection, can also stop an engine. Keeping the filters free of dirt and water is an obvious answer to this problem, and the cleaning schedules set forth in the engine manual will in most cases keep filters clean enough to prevent stoppage.

3.2.7.2 A factor that can cause additional problems is bacterial contamination of the diesel fuel. The bacteria involved need both water and fuel to exist, and if present, will thrive at the fuel/water interface in a fuel tank. As they multiply they form more water and a filter choking brown slime. Often their presence will not be known until rough weather churns up the fuel tank, causing clogged filters at a most inopportune time.

3.2.7.3 Keeping water out of the fuel will, of course, prevent the problem entirely, and while every effort

should be made toward this end, such as obtaining fuel from reputable dealers, it must be remembered that a certain amount of water due to normal condensation in the tank is to be expected.

3.2.7.4 Fuel additives or conditioners provide another means of combating this problem. These additives break the water down to a molecular level, dispersing it throughout the fuel, and allowing it to pass harmlessly through the fuel system. Various brands of this product are available at marine supply stores. As with all products of this nature, the directions on the can should be read carefully.

CAUTION

THE PRECEEDING DISCUSSION IS NOT REFERRING TO THE ALCOHOL BASED PRODUCTS USED IN GASOLINE ENGINES.

3.2.7.5 Shaft Packing Gland. A properly adjusted shaft packing gland should drip slightly (from 4 to 15 drops per minute) with the engine off. Too loose an adjustment will allow too much water in the bilge, and engine operation will spray water from the shaft. Too tight an adjustment will rob the engine of power, and the lack of water lubrication in the packing gland can generate enough heat to damage the gland and/or score the propeller shaft.

NOTE

THE PACKING GLAND IS LOCATED NEAR THE VEE DRIVE UNIT AND IS ACCESSIBLE THROUGH THE SMALL HATCH IN THE TRASH BIN LOCKER.

3.2.7.6 To adjust the packing gland, perform the following steps:

- a. Holding the packing nut with one wrench, use a second wrench to loosen the lock nut. Turn the lock nut far enough to keep it from interfering with the next adjustment (2 or 3 turns).
- b. Tighten the packing nut to obtain 4 to 15 drops per minute.

NOTE

HAND TIGHTENING OF THE PACKING NUT IS OFTEN SUFFICIENT TO OBTAIN THIS ADJUSTMENT. IF THIS IS NOT THE CASE, AN ADDITIONAL $\frac{1}{4}$ TO $\frac{1}{2}$ TURN WITH THE WRENCH SHOULD PRODUCE THE DESIRED RESULT.

- c. Hold the packing nut in place with one wrench, and use the second wrench to bring the locking nut securely against the packing nut.

CAUTION

MAKE CERTAIN THAT THE LOCKING NUT IS TIGHT. FAILURE TO DO THIS COULD ALLOW THE PACKING NUT TO BACK OFF WHEN THE ENGINE IS OPERATING.

- d. Operate the engine at slow speeds in forward and reverse and use a light to check for excessive water at the packing nut. Shut off the engine and recheck packing nut for proper drip.

3.2.7.7 Shaft Coupling. All of the propulsion power produced by the engine is transferred to the propeller by way of the engine drive shaft, the propeller shaft, and the coupling that joins these two shafts together. A careful alignment between engine and propeller shaft at the shaft coupling is essential if efficient and vibration free operation is to be attained. This alignment involves making adjustments to the engine mounts until the mating surfaces of the coupling are properly aligned and is one of the tasks that is performed by Pearson during commissioning.

NOTE

THE SHAFT COUPLING IS LOCATED AT THE REAR OF THE VEE DRIVE UNIT.

3.2.7.8 Once adjusted, the alignment is not likely to require readjustment unless it becomes necessary to move the engine, or to perform extensive work on the propeller and shaft assembly. In cases such as this, it is recommended that an experienced marine mechanic perform the adjustment.

3.2.7.9 Since it may become necessary to disconnect and reconnect the coupling at one time or another (some people prefer to do this when the boat is hauled), and since this procedure, as well as the procedure for simply checking the alignment are not extensive, they have been included in the following paragraphs:

WARNING!

ENSURE THAT THE ENGINE OFF/ON SWITCH IS OFF AND REMOVE THE KEY TO MAKE CERTAIN THAT THE ENGINE CANNOT BE STARTED DURING THE FOLLOWING PROCEDURES.

3.2.7.10 To disconnect the coupling, perform the following steps:

- a. Remove the four connecting bolts from the shaft coupling, and move the two mating surfaces apart.

CAUTION

IF IT IS NECESSARY TO PRY THE COUPLING APART, USE CARE NOT TO SCAR THE TWO MATING SURFACES.

3.2.7.11 To check shaft alignment proceed as follows:

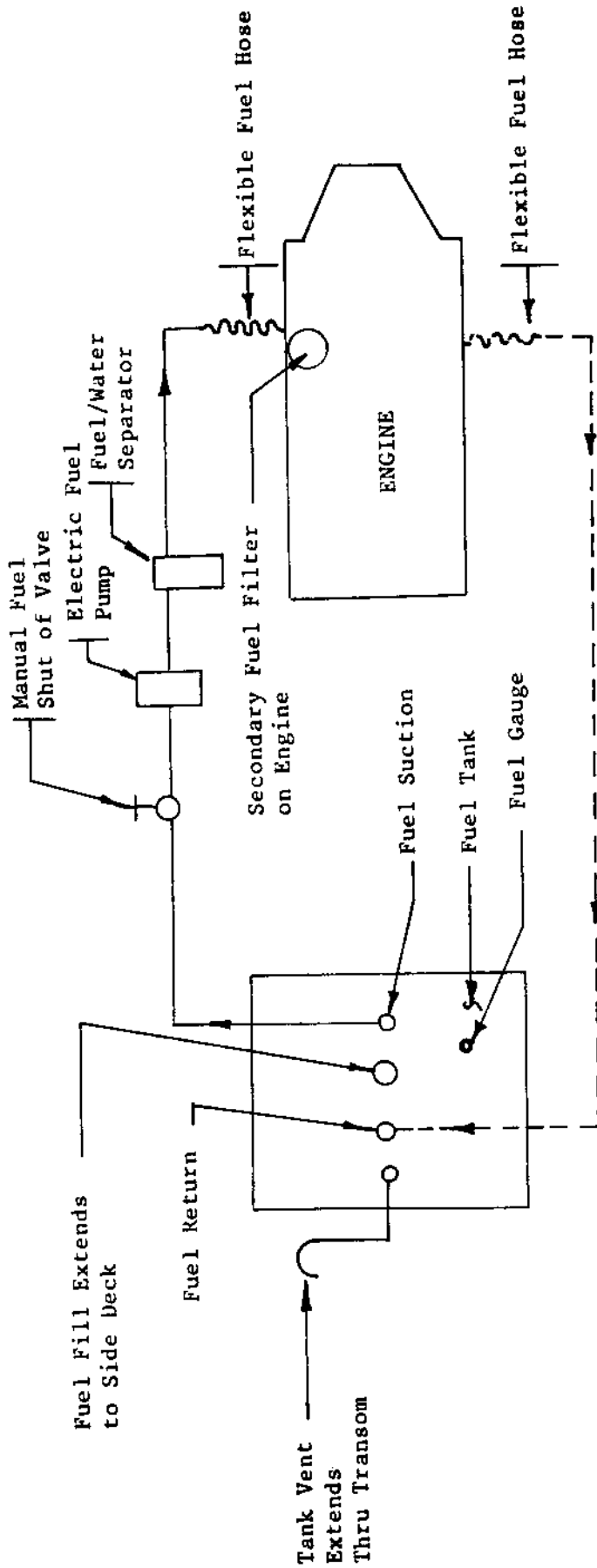
- a. Ensure that the two mating surfaces on the shaft coupling are clean.
- b. Pull the shaft forward until the flange faces come gently into contact, and attempt to insert a .002 feeler gauge between the faces. Do this at the 12, 3, 6, and 9 o'clock positions on the flange.
- c. Rotate the propeller shaft 180 degrees and repeat step b.
- d. If the feeler gauge can be inserted at any point on the flange (figure 3.2-2), the engine, shaft, and Vee drive are in need of alignment. If this is the case, an experienced mechanic should perform the adjustment.

3.2.7.12 To reconnect the shaft coupling proceed as follows:

- a. Move the shaft flanges close enough to permit threading the bolts through the flanges. Thread all four bolts finger tight.
- b. Tighten all four bolts in a uniform manner until they are all tight (approximately 40 ft. lbs.).

FIGURE 3.

P-36 CUTTER
FUEL SYSTEMS SCHEMATIC
(FOR DIESEL ENGINES)



— Fuel Supply Line
- - - Fuel Return Line

FIGURE 3.2-1
Fuel System Schematic (Diesel)
Pearson 36 CUTTER

FIGURE 3.2-2
P-36 CUTTER
TYPICAL PROPELLER SHAFT ALIGNMENT

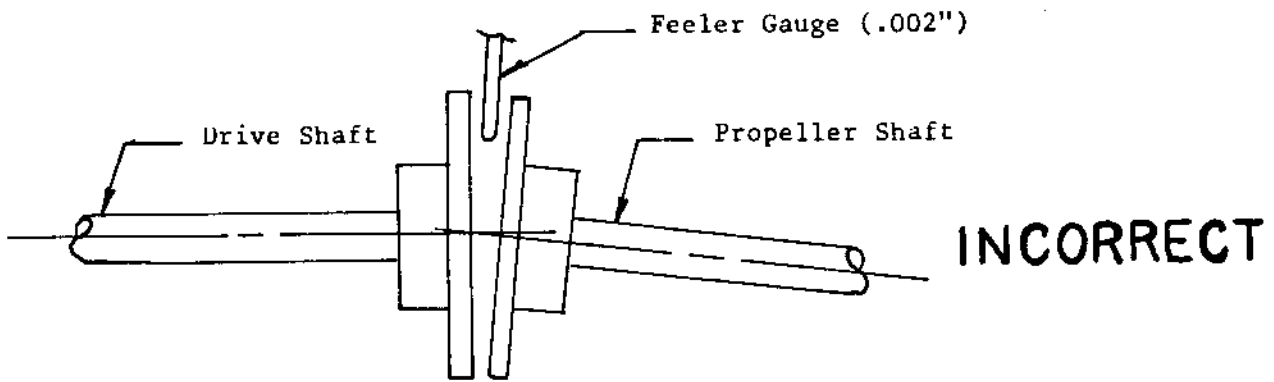
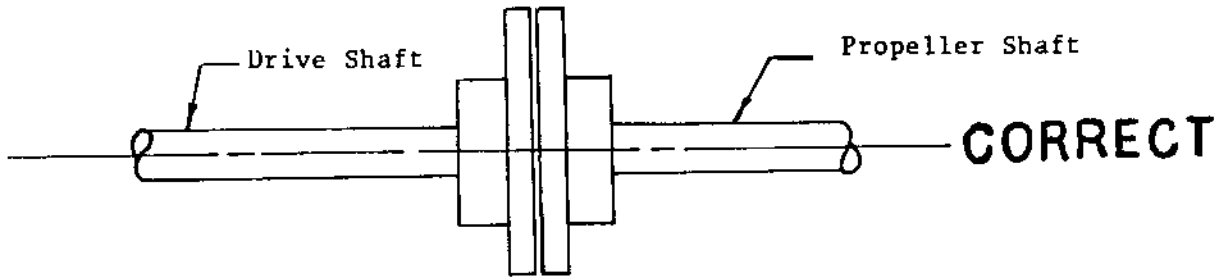


FIGURE 3.2-2
Typical Propeller Shaft Alignment
Pearson 36 CUTTER

3.3 ELECTRICAL SYSTEM

3.3.1 There are two separate electrical systems on the Pearson 36 Cutter, a 12-volt dc system, and a 110-volt ac shore power system.

3.3.2 12-VOLT DC SYSTEM. The 12-volt dc system contains two 90 ampere-hour batteries connected to a battery selector switch that permits the selection of either battery for the system (figure 3.3-1). The battery selector switch is located on the aft bulkhead in the main cabin.

CAUTION

NEVER MAKE CHANGES TO THE BATTERY SELECTOR SWITCH POSITION WHEN THE ENGINE IS RUNNING. DISCONNECTING THE BATTERY LOAD FROM AN ALTERNATOR THAT IS IN OPERATION CAN DAMAGE THE ALTERNATOR.

3.3.2.1 As shown on the diagram, all dc circuits except those associated with the engine, are fed to the main circuit breaker panel located in the main cabin. An expanded scale dc voltmeter is built into the panel that indicates when power is available and is also useful for determining the state of charge for the battery being used.

3.3.3 110-VOLT AC SYSTEM. The 110-volt system contains one 30-ampere shore power connection, and a switch panel with a 30-ampere main circuit breaker and three branch circuit breakers (figure 3.3-2). One of the breakers controls and protects the 110 volt receptacles in the yacht, another is for the hot water heater, and the third is for the optional equipment.

3.3.4 CARE AND MAINTENANCE. The electrical system on the Pearson 36 Cutter requires very little maintenance other than bulb replacement, an occasional check for loose terminals, and the battery care described in the following paragraphs.

3.3.4.1 Battery Care. With proper care, the batteries installed in the Pearson 36 Cutter will provide long and satisfactory service, and proper care is not difficult if a few basic points are remembered.

FIGURE 3.3-2
P-36 CUTTER
110 V ELECTRICAL
WIRING DIAGRAM

REVISED: June 4, 1981

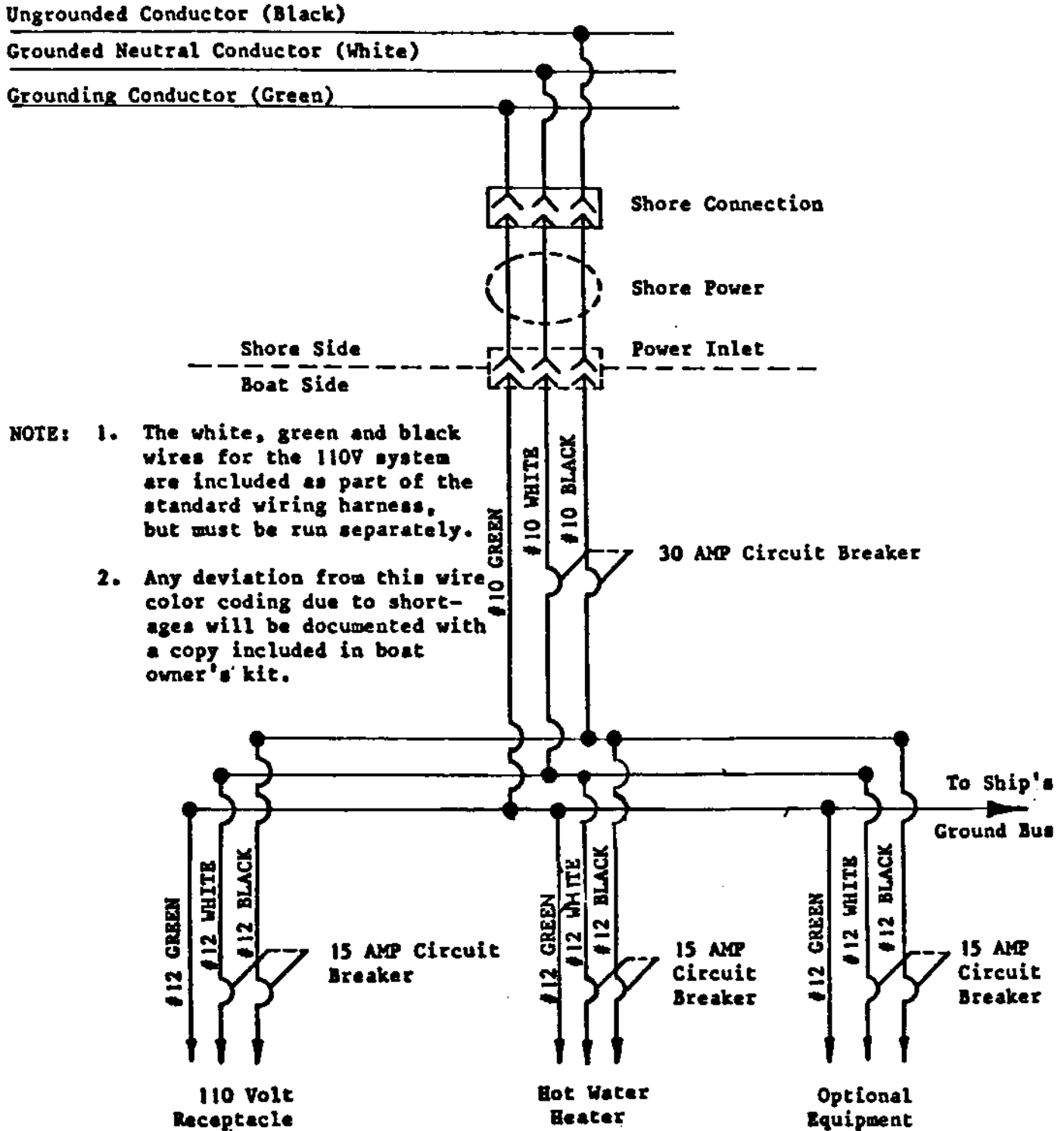


FIGURE 3.3-2
110V Electrical Wiring Diagram
Pearson 36 CUTTER

JANUARY 5, 1981
 PEARSON YACHTS DIVISION OF GRUMMAN ALLIED INDUSTRIES, INC.

WARNING!

THE ELECTROLYTE IN A BATTERY IS A SOLUTION OF SULPHURIC ACID. IF ANY SHOULD ENTER THE EYES, RINSE IMMEDIATELY WITH LARGE AMOUNTS OF FRESH WATER, AND SEEK MEDICAL ATTENTION. ELECTROLYTE SPILLED ON SKIN SHOULD BE RINSED WELL WITH FRESH WATER. EVEN SMALL AMOUNTS OF ELECTROLYTE SPILLED ON CLOTHING WILL DESTROY THE CLOTHING.

- (1) The electrolyte level in a battery should never be allowed to fall low enough to expose the plates. This not only results in a loss of battery capacity while the battery is low, but will cause hardening of the active material on the battery plates, resulting in a permanent loss of battery capacity.

CAUTION

USE ONLY PURE DISTILLED WATER TO REPLENISH ELECTROLYTE LEVELS. THE WATER FROM MANY CITY WATER SUPPLY SYSTEMS IS UNSATISFACTORY FOR BATTERY USE.

- (2) Leaving a battery in a discharged state for any length of time can also result in a permanent loss of capacity for the battery. Doing so in cold weather can destroy the battery since it will freeze at relatively low temperatures.
- (3) Keep battery connections clean and tight. A cup full of strong baking soda solution and a toothbrush will clean corrosion from the terminals and neutralize any spilled acid (do not allow any of the solution to enter the battery cells). A coating of petroleum jelly on the battery terminals will inhibit corrosion.

3.4 STEERING SYSTEM

3.4.1 The Pearson 36 Cutter employs an Edson pedestal sheave and cable steering system. An adjustable brake mechanism located on the starboard side of the unit, permits the wheel to be locked in position if desired.

3.4.2 The maintenance that is required for the steering system consists largely of oiling and greasing the mechanism, cable and sheaves, and is well covered in the manufacturer's literature that is supplied at commissioning. It is recommended that the procedures described in this literature be followed to ensure many years of trouble free service.

3.4.3 The steering system includes an emergency tiller that can be fitted over the rudder stock head in the event that a failure should occur in the pedestal system. Access to the rudder stock head is gained by removing a flush deck plate located in the cockpit directly over the rudder post.

3.4.4 Figure 3.4-1 consists of drawings illustrating the deck plate, the location of the rudder stock in relation to the deck plate, and the emergency tiller fitted into place. Additional comments on the operation and care of the emergency tiller system are also included on the illustration.

3.5 HULL SYSTEMS

3.5.1 THRU-HULLS. A number of the standard and optional systems used on the Pearson 36 Cutter must penetrate the hull for intake of water. In addition, scuppers, drains, and certain waste discharge systems are also brought out below the waterline. Knowledge of the precise location of each thru-hull is important, and should be one of the first things a new owner learns about his boat. The Thru-Hull Location diagram (figure 3.5-1) and the Docking Plan (figure 3.5-2), illustrate the location of each thru-hull in plan and profile.

3.5.2 FRESH WATER SYSTEM. Figure 3.5-3 is a schematic diagram of the fresh water system installed on the Pearson 36 Cutter. The system contains three separate water tanks, two under the port and starboard bunks in the main cabin, and one under the V berth. An inspection port is located on the top of each tank, making it possible to determine the amount of water in each tank. The inspection port is also utilized when cleaning the

tank. Tank fills (marked WATER) are located on deck to port and starboard, forward of the mast, and at the bow.

CAUTION

DO NOT OVERFILL THE TANKS. FILLING ABOVE THE LEVEL OF THE TANK TOPS WILL SUBJECT THE TANKS TO EXCESSIVE HYDROSTATIC PRESSURE, WHICH MAY RUPTURE THE TANK.

3.5.2.1 Hot and cold water pressure is supplied to the galley sink, and to the head for the sink and the shower. In addition, a manual foot pump and cold water spout is provided at the galley sink.

3.5.2.2 Tank Selection. Each tank has its own selector valve, located on a manifold under the galley sink (see insert of figure 3.5-3). Only one tank selector valve should be open at any one time.

3.5.2.3 Foot Pump Operation. Perform the following steps:

- a. Open the foot pump selector valve, located on the manifold.
- b. Depress the foot pump pedal, located on the face of the galley counter in order to obtain water.

3.5.2.4 Pressure System Operation. Normal operation of the pressure system simply involves closing the foot pump selector valve, and energizing the PRESSURE PUMP circuit breaker on the DC panel in order to start the pressure pump. The pressure pump will then turn itself on and off automatically whenever enough water is drawn to lower the pressure in the accumulator tank. If the system is being started up after a long shut down, or after having run the system dry, it will be necessary to perform the following steps:

- a. Ensure that the manifold valve to only one tank is open, and that the foot pump selector valve is closed.
- b. Check the water level in the tank that is to be used.
- c. Open all faucets, hot and cold.
- d. Energize the PRESSURE PUMP circuit breaker.

- e. Close each faucet when it starts to deliver a steady stream of water (cold water faucets first).
- f. Check that the pump stops operating shortly after the last faucet is closed.

The system is now ready for automatic operation, the pump will start whenever pressure is lowered through water use, and stop when pressure is restored in the accumulator tank.

3.5.2.5 Hot Water Heater. This unit is located in the starboard sail locker (see figure 3.5-3). Hot water is produced in two ways:

- a. With the engine running, a part of the engine cooling water is passed through a coil in the hot water tank, to heat the water in the tank.
- b. When connected to shore power, and with the WATER HEATER CIRCUIT BREAKER ON THE AC PANEL energized, a thermostatically controlled electric heating element is used to heat the water.

3.5.2.6 Water System Maintenance. The manufacturers' literature supplied at commissioning provides the necessary information for maintenance, repair, and winterization of the water system.

3.5.3 SALT WATER SYSTEM. As a water conservation aid, a hand-operated salt water pump is provided at the galley sink, for those duties that can be served with salt water.

3.5.4 PROPANE OR LPG SYSTEM. The use of ranges and ovens fueled by propane or LPG requires installation in accordance with rigid specifications in order to safeguard against gas leakage into bilge areas. Two items of extreme importance in these specifications are: (1) the installation of propane storage tanks in a compartment that is sealed off from the interior of the boat, and vented overboard, and (2) the inclusion of a shut-off system that ensures the shutting off of the fuel supply outside the interior of the boat, when the stove is not actually in use.

3.5.4.1 Figure 3.5-4 illustrates the method employed on the Pearson 36 Cutter to satisfy these requirements. Two propane tanks are mounted in molded-in storage lockers in the cockpit. The starboard tank is a spare, and the port tank is connected to the system as shown in the illustration, with the lowest point of each

locker vented overboard. A control panel located in the galley controls two solenoid valves, one under the galley sink, the other in the port locker. A manual shutoff, a gauge, and a pressure regulator complete the installation.

3.5.4.2 The small amount of power (less than 15 watts) that is required to operate the valves and indicator light is supplied from the dc panel, and current is drawn only when the system is energized. The system can be regarded as "fail safe" since loss of power will result in automatic valve shutoff.

3.5.4.3 Operation. Perform the following steps:

- a. Ensure that the propane tank manual shutoff is open, and that the gauge indicates sufficient pressure in the tank.

NOTE

THE MANUAL CONTROL VALVE IN THE STORAGE LOCKER MAY BE LEFT OPEN WHILE THE YACHT IS OCCUPIED, BUT FOR ADDED SAFETY, THE MANUAL SHUTOFF SHOULD BE CLOSED WHEN THE YACHT IS LEFT UNATTENDED FOR ANY LENGTH OF TIME.

- b. Ensure that the switch on the electrical panel for the propane system is ON.
- c. Turn the safety control panel switch to ON and observe that the red indicator light is illuminated.
- d. Open the range valve serving the desired burner and light the burner.
- e. To shut off after cooking is completed, turn the safety control panel to OFF, and after the burner flame is extinguished, close the burner valve.

3.5.4.4 Although propane or LPG gas is odorless, a special ingredient is added to the gas to impart a distinctive odor to the gas to aid in the detection of leaks. Should this odor be detected in the vessel when the equipment is thought to be secured, or if a leak is suspected for any other reason, it is important that steps be taken to find the cause. If the leak cannot be found, or if doubt exists about the ability to effect repairs, the services of qualified technical personnel should be employed.

A simple test procedure that can be used to check the system for leaks is as follows:

1. Ensure that the switch on the control panel is in the OFF position.
2. Open the cylinder shutoff valve, and observe the pressure reading on the gauge.
3. Close the cylinder shutoff valve. On a system free of leaks, the reading on the gauge will remain constant for several minutes after the valve is closed.

WARNING!

NEVER USE AN OPEN FLAME SUCH AS A MATCH OR CANDLE TO SEARCH FOR LEAKS.

A solution of soapy water applied to fittings, and a search for bubbles with the system under pressure, is a safe, useful procedure for localizing a leak.

3.5.5 BONDING SYSTEM. As illustrated in figure 3.5-5 the metal parts of the yacht, (thru-hull, fuel tank, deck fill, engine, etc.) are all bonded to a common point for galvanic and electrical stability.

3.6 ANCHOR BOWSPRIT AND FITTINGS

3.6.1 The anchor fittings for the Pearson 36 Cutter consist of a double roller bowsprit, port and starboard bow chocks, and two bow cleats. The following are some general comments concerning their use.

3.6.1.1 When stowing the anchor on the bowsprit, lash it securely in place at the shank. If heavy seas are expected, remove the anchor from the sprit and either stow it on deck in anchor chocks, or below decks.

3.6.1.2 The primary function of the anchor bowsprit is to provide anchor stowage, and ease of handling when raising or lowering the anchor. The forces that can be exerted at the base of the bowsprit and on the rollers can be tremendous if severe strain is placed on the end of the bowsprit. When anchoring in heavy weather, the anchor rode should lead through a bow chock, not the anchor roller. This will not only prevent excessive strain on the bowsprit, but allow the yacht to ride more easily.

CAUTION

NEVER USE THE BOWSPRIT TO BREAK OUT AN ANCHOR. FOR THIS PURPOSE, LEAD THE ANCHOR ROPE THROUGH ONE OF THE BOW CHOCKS TO A BOW CLEAT. ONCE THE ANCHOR IS FREE, IT CAN BE HOISTED USING THE ANCHOR ROLLER.

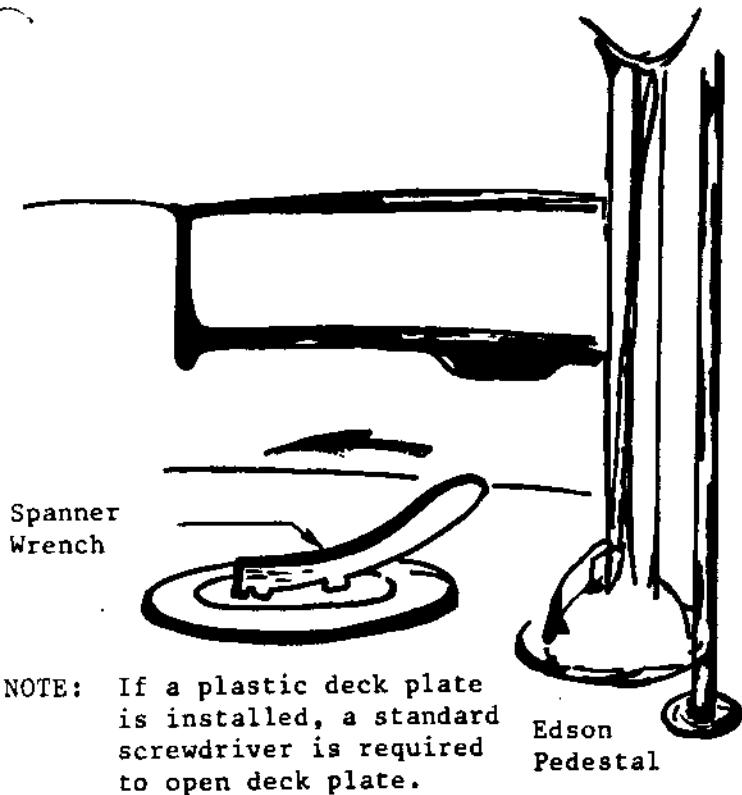
FIGURE 3.4-1
P-36 CUTTER
EMERGENCY TILLER INSTALLATION

A dry run of your emergency tiller system in stable conditions will lessen confusion in times of crisis. Before casting off make sure you have not left your emergency tiller and spanner wrench ashore. Once aboard make sure the emergency tiller is stowed in an easily accessible place and not under a pile of gear at the bottom of the sail locker.

The rudder stock access plate requires regular lubrication to keep it from seizing. This plate is located in the aft portion of your cockpit above your rudder stock. When necessary, the plate can be removed with the spanner wrench as illustrated. The access plate's removeability is insured by the accessibility of your spanner wrench. Keep it available.

When access to your rudder stock is achieved, the square end of the emergency tiller can be fitted to the rudder stock. Some boats can be steered with the tiller straight forward; on others it will have to be off to the side to clear the wheel.

NOTE: The emergency tiller will move the whole steering system so each part including the cable and rudder must be clear.



NOTE: If a plastic deck plate is installed, a standard screwdriver is required to open deck plate.

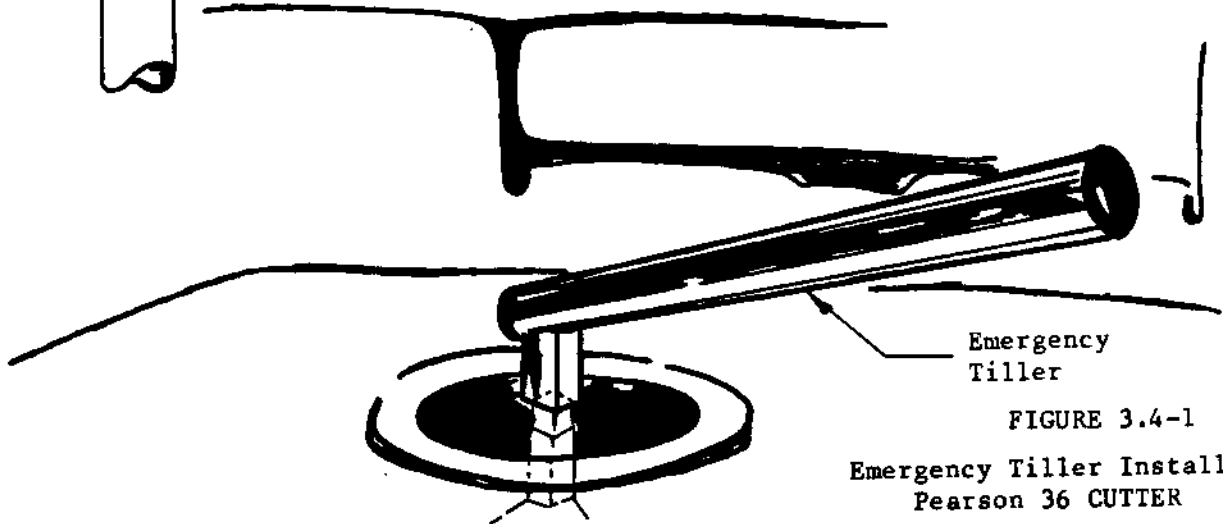
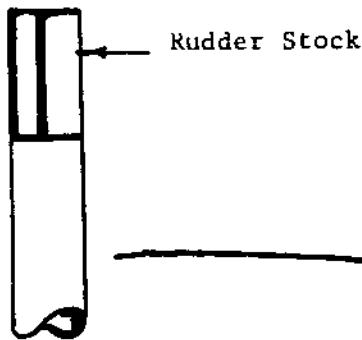


FIGURE 3.4-1
 Emergency Tiller Installation
 Pearson 36 CUTTER

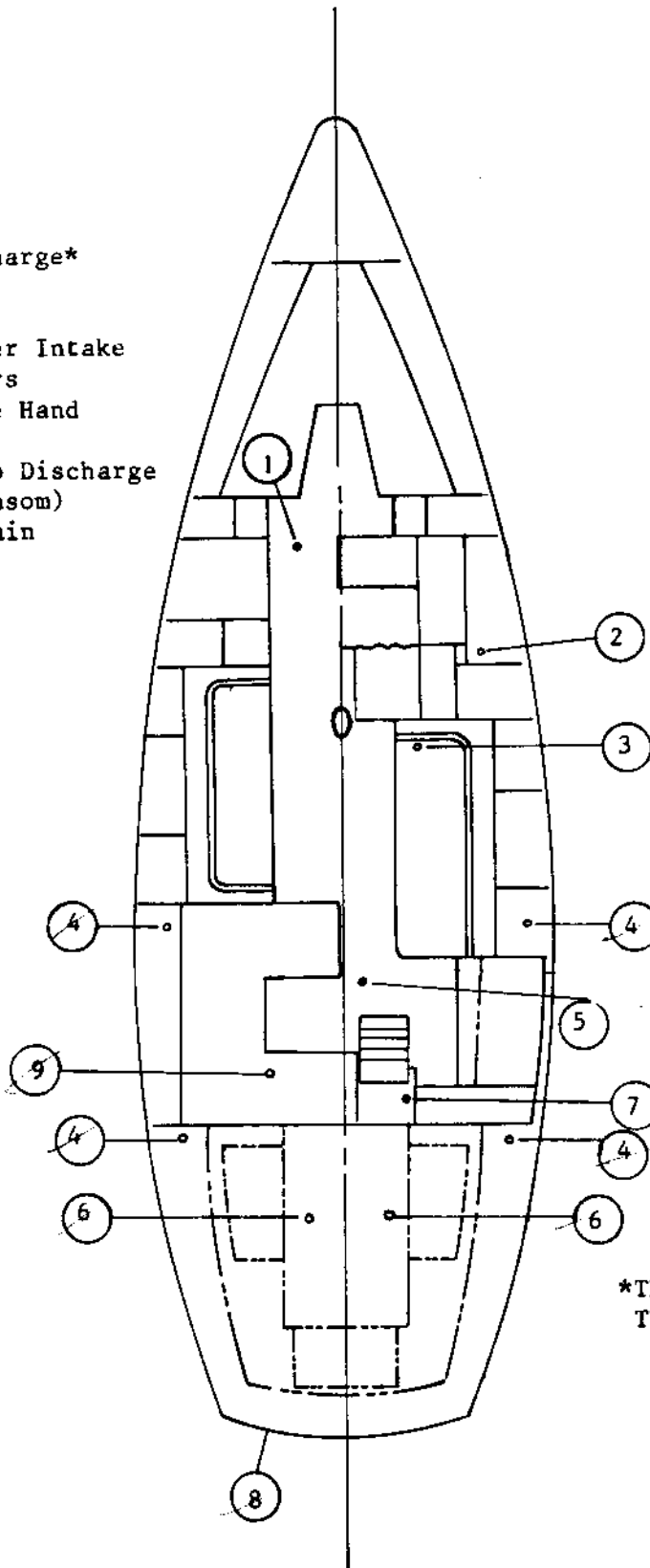
FIGURE 3.5-1
P-36 CUTTER
THRU-HULL LOCATION SCHEMATIC

PORT SIDE

STARBOARD SIDE

NO. DESCRIPTION

- 1. Head Intake
- 2. Sump Pump Discharge*
- 3. Head Discharge
- 4. Deck Scuppers
- 5. Engine Raw Water Intake
- 6. Cockpit Scuppers
- 7. Seawater Intake Hand Pump Galley
- 8. Hand Bilge Pump Discharge (Port Side Transom)
- 9. Galley Sink Drain



*THE SHOWER AND VANITY DRAIN TO THE SUMP PUMP.

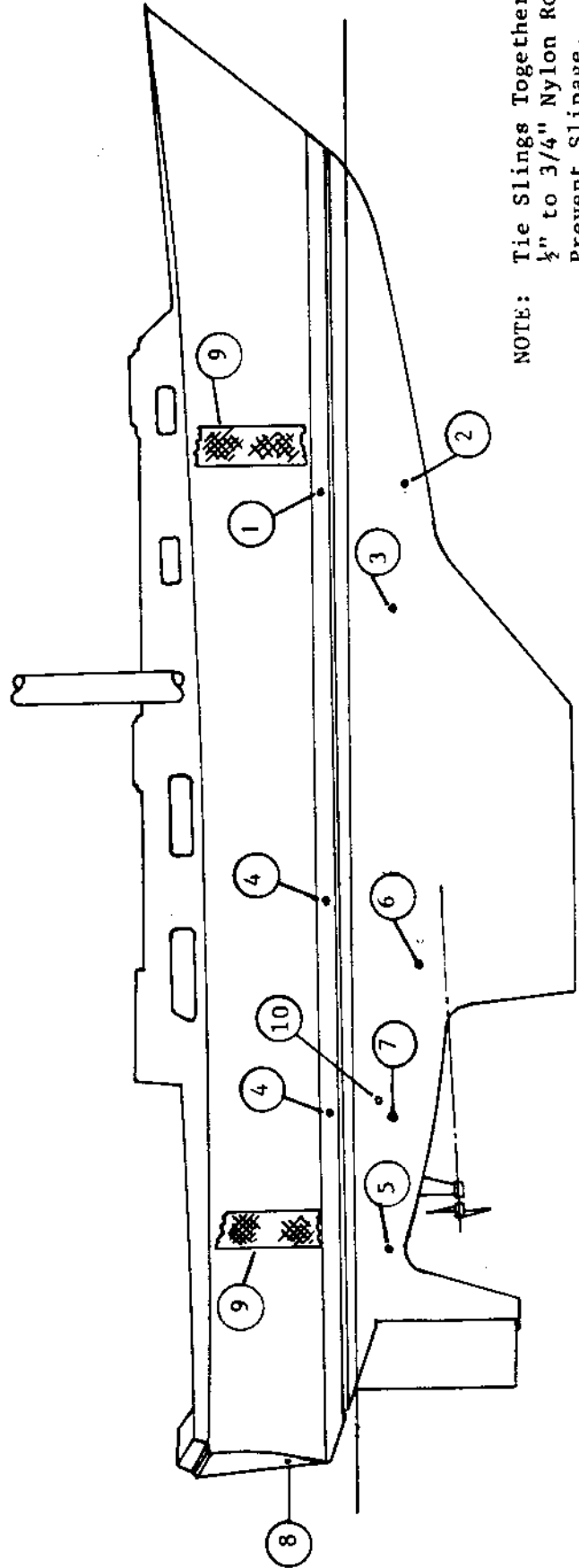
FIGURE 3.5-1
 Thru-Hull Location Schematic
 Pearson 36 CUTTER

FIGURE 3.

DOCKING PLAN
P-36 CUTTER

NO. DESCRIPTION

1. Sump Pump Discharge (Stb'd Side)
2. Head Intake (Port Side)
3. Head Discharge (Stb'd Side)
4. Deck Scuppers (P & S)
5. Cockpit Scuppers (P & S)
6. Engine Raw Water Intake (Stb'd Side)
7. Seawater Intake Hand Pump Galley (Stb'd Side)
8. Hand Bilge Pump Discharge (Port Side Transom)
9. Lifting Sling
10. Galley Sink Drain (Port Side)



NOTE: Tie Slings Together with 1/2" to 3/4" Nylon Rope to Prevent Slippage.

FIGURE 3.5-2
DOCKING PLAN
PEARSON 36 CUTTER

FIGURE 3.5-3

PEARSON 36 CUTTER
FRESH WATER SYSTEM SCHEMATIC

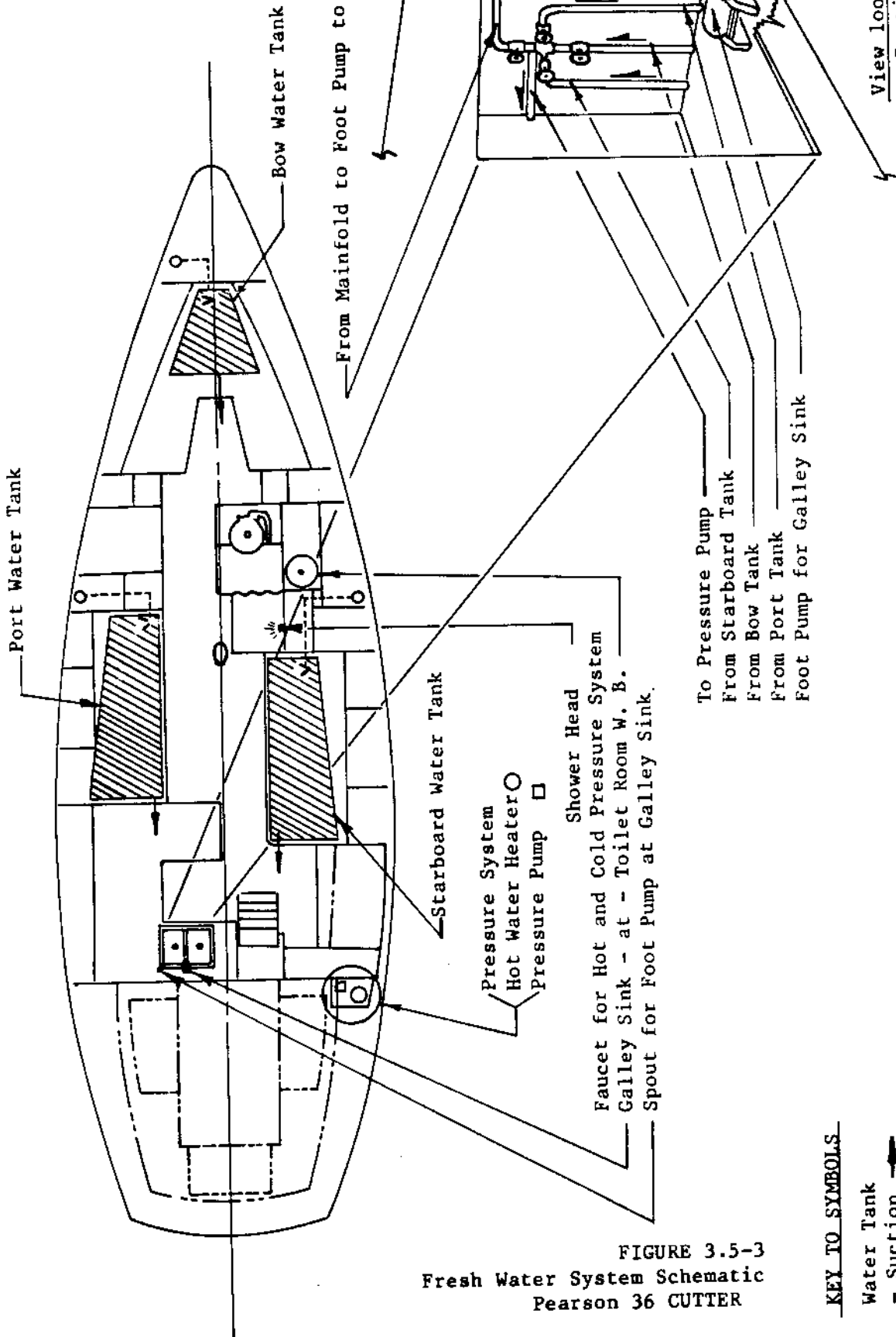


FIGURE 3.5-3
Fresh Water System Schematic
Pearson 36 CUTTER

KEY TO SYMBOLS

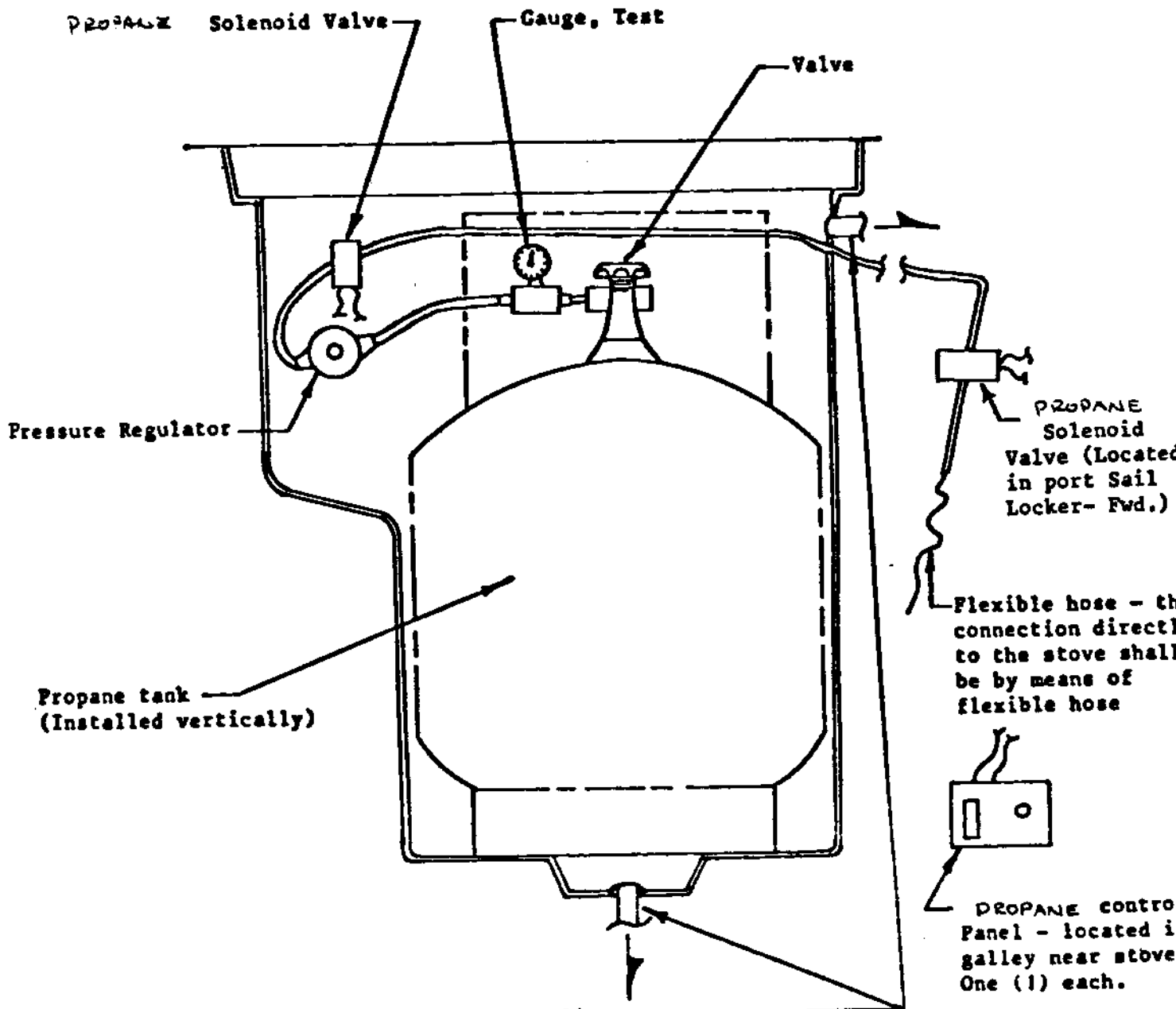
- Water Tank
- Suction →
- (At Lowest Point in Tank)
- Vent V
- (In Top of Tank)
- Deck Fill --O
- (Fill in Forward End of Tank)

View looking outboard
at Partition in Locker
Under Sink

To Pressure Pump
From Starboard Tank
From Bow Tank
From Port Tank
Foot Pump for Galley Sink

Pressure System
Hot Water Heater O
Pressure Pump □
Shower Head
Faucet for Hot and Cold Pressure System
Galley Sink - at - Toilet Room W. B.
Spout for Foot Pump at Galley Sink.

FIGURE 3.5-4
 P-36 CUTTER
PROPANE OR L.P.G. SYSTEM
INSTALLATION SCHEMATIC



Propane storage compartment to be sealed off from the interior of the boat and vented at the top and bottom to the outside of the hull away from any thru-hull fittings.

FIGURE 3.5-4
 Propane Or LPG System
 Pearson 36 CUTTER

FIGURE 3)5

P-36 CUTTER
BONDING SCHEMATIC

INTERNAL BALLAST

NO. DESCRIPTION

- 1. Stemhead Fitting
- 2. Main Shroud Tangs
- 3. Backstay Tang
- 4. Thru-hull
- 5. Engine
- 6. V-drive
- 7. Strut
- 8. Fuel Tank
- 9. Deck Fill
- 10. Internal Ballast
- 11. Inner Forestay Chain-plate

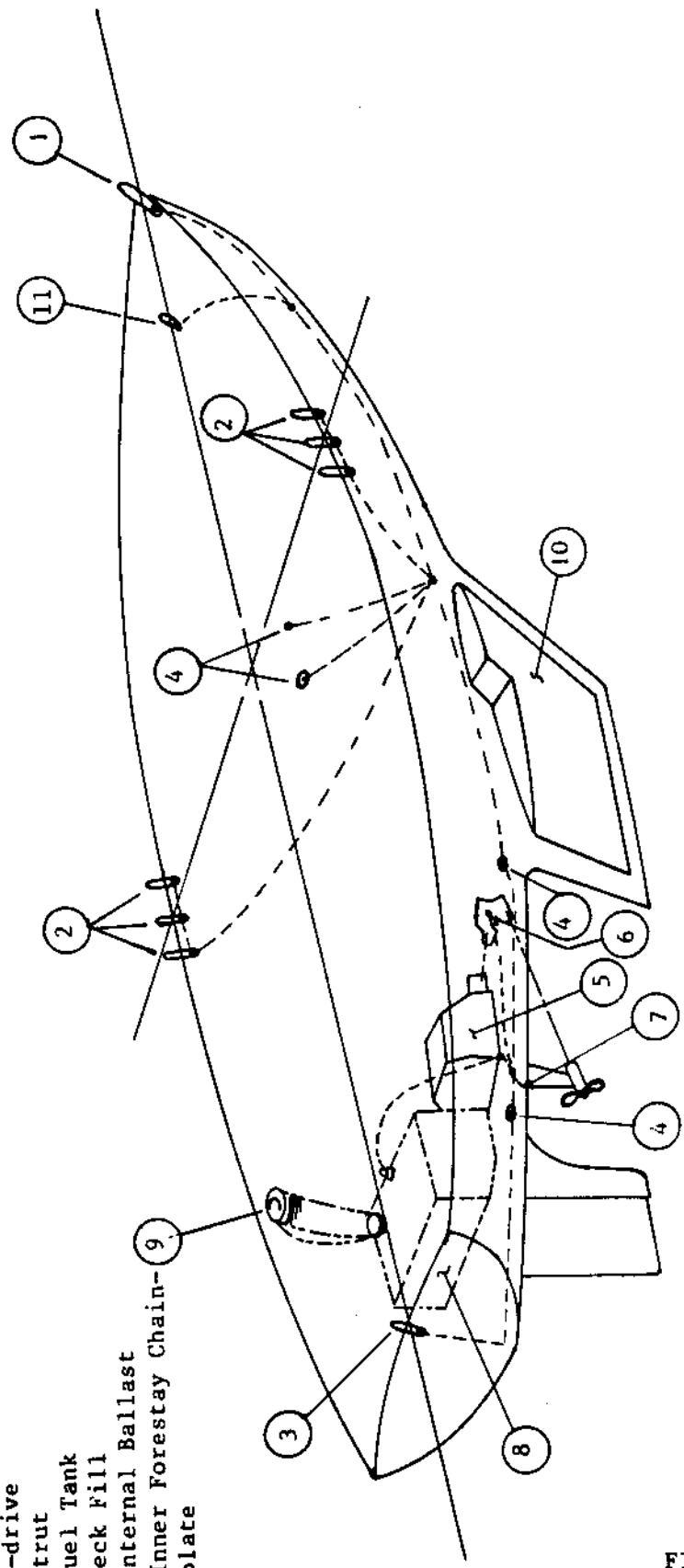


FIGURE 3.5-5
BONDING SCHEMATIC AND
INTERNAL BALLAST,
P-36 CUTTER

SECTION 4

MAINTENANCE SUMMARY

4.1 INTRODUCTION

4.1.1 This section of the manual consists of a summary of the maintenance required for the hull proper, and for the various systems installed in the Pearson 36 Cutter. The section is divided into three categories:

- (1) Routine Maintenance. Those tasks that should be performed on a more or less continuing schedule. These range from daily routines such as engine fluid level checks, to tasks such as bottom painting, that normally fall into annual cycles.
- (2) Laying Up. Tasks to be performed if the yacht is to be stored for a period of time, especially during cold weather.
- (3) Fitting Out. Tasks required to place the yacht back in commission after a lay up period.

4.1.2 It should be evident that it is not possible to draw up precise maintenance schedules that will completely satisfy the requirements of each individual yacht. For example a vessel receiving moderate use, that is laid up during the winter months, can perform much of the long term routine maintenance at the beginning or end of the winter lay up period, while yachts used throughout the year will have to schedule time to perform these tasks.

4.2 ROUTINE MAINTENANCE

4.2.1 Many of the routine maintenance tasks, such as care of teak can be performed when the need becomes evident, others, such as checking engine oil level, must be performed on a regular schedule if expensive repair bills are to be avoided. Recommended schedules have for the most part, been taken from the literature supplied by the manufacturers of the equipment installed in the yacht. Additional information that may be desired, should be taken from these same sources.

4.2.2 TOPSIDES, DECKS, AND BELOW DECKS.

4.2.2.1 GELCOAT. A fresh water hose-down of deck and topsides at every opportunity, plus an occasional fresh water and detergent wash, will help preserve the gel-

coat surfaces. Use a sponge and a soft brush on the smooth surfaces, and a stiff brush on the non-skid areas. Rinse thoroughly with fresh water to avoid streaking.

CAUTION

DO NOT USE ABRASIVE CLEANERS FOR DAY-TO-DAY CLEANING. THEY WILL DULL THE GELCOAT SURFACE.

4.2.2.2 At least once a year, the smooth gelcoat surfaces should be cleaned thoroughly, waxed, and polished. Bronze wool can be used for cleaning stubborn areas. Abrasive cleaners should be used sparingly if at all. Use a wax especially formulated for fiberglass surfaces.

CAUTION

NEVER USE STEEL WOOL FOR ANY KIND OF CLEANING ON A YACHT. SMALL PARTICLES WILL REMAIN, CAUSING RUST SPOTS THAT ARE DIFFICULT TO REMOVE.

4.2.2.3 Wood Surfaces. Depending on the personal preferences of the owner, the exterior teak on the Pearson 36 Cutter may be oiled, varnished, or left along. If left untreated, exterior teak takes on a gray appearance that is pleasing to some people, but requires almost constant scrubbing to keep presentable. Varnished teak retains a fresh light color, but requires a lot of attention since varnish does not adhere well to teak. Oiled teak is the easiest to maintain although it has a tendency to darken with age. A number of excellent products for maintaining oiled teak are available, and the instructions regarding their use should be followed carefully.

4.2.2.4 When a lighter finish is desired with oiled teak, the dark outside layer of wood can be removed by rubbing with bronze wool or with fine sandpaper. After rubbing, the teak should be well oiled.

4.2.2.5 The interior wood finishes on the Pearson 36 Cutter should last for several seasons before requiring renewal. It should, however, be kept in mind that it is far easier to refinish a surface in fair to good condition than to refinish a surface that has been allowed to deteriorate.

4.2.3 BELOW THE WATERLINE. With the exception of small craft that are removed from the water between operations, all vessels require some form of bottom protection to avoid the accumulation of bottom growth. This usually needs to be done on a yearly basis. Although fresh water areas do not generate the wealth of animal life that accumulates on bottoms in salt water, it nevertheless will cause growth of moss, grass, and other flora that will significantly affect the performance of the yacht.

4.2.3.1 Bottom Cleaning. Cleaning the accumulated growth from a boat bottom is far easier when the growth is wet than after it has been allowed to dry out. While still wet, a power spray and stiff brush will remove most bottom growth. Barnacles that resist this action can easily be removed with a scraper.

NOTE

WHILE CLEANING THE BOTTOM, PROBE INTO ALL THRU-HULLS TO REMOVE ANY BARNACLES THAT MAY HAVE ATTACHED THEMSELVES TO THE INSIDE OF THE PASSAGES.

4.2.3.2 Bottom Preparation and Painting. Most bottom paints require removal of all loose material from the bottom, and a thorough but light sanding of any portion of the old paint that remains in good condition. A proper sanding procedure will normally take off approximately the same amount of the old paint as is intended to be reapplied. This avoids excessive paint accumulation that will eventually cause peeling and roughness on the bottom.

4.2.3.3 The actual formula of the bottom paint that should be applied is to a great extent determined by the general area in which the yacht is expected to operate (fresh or salt water, temperate or tropical areas, etc.) and local advice from reputable yards is helpful. Application of bottom paint should always conform to the manufacturers' instructions if maximum effect is to be achieved. Some bottom paints recommend thinning, others do not; some specify that the boat be returned to the water before the paint has completely dried out (usually 3 or 4 days), others make no qualifications in this area but may have other requirements.

CAUTION

SOME BOTTOM PAINT FORMULAS ARE NOT COMPATIBLE WITH OTHERS, AND CANNOT BE APPLIED

DIRECTLY OVER ONE ANOTHER WITHOUT PROPER PREPARATION. THE OWNER SHOULD KEEP A RECORD OF THE TYPE BOTTOM PAINT THAT IS IN USE TO AVOID ANY PROBLEMS IN THIS AREA.

4.2.4 SPARS AND RIGGING. The aluminum spars and stainless steel rigging on the Pearson 36 Cutter require little routine maintenance other than cleaning, and the regular on-going checks that any prudent person would make for signs of wear. Some cleaning and inspection procedures are included in the following paragraphs.

4.2.4.1 Cleaning Wire Rope and Fittings. Using a stiff brush, or nylon pads, clean with fresh water and detergent. Rinse thoroughly. Refer to Paragraph 3.1.4.1 for further details.

4.2.4.2 Cleaning Synthetic Rope. When practicable soak overnight in warm water, rinse thoroughly, dry before storing.

4.2.4.3 Rigging Inspection. At least once a season, make a complete inspection of all of the yacht's rigging and fittings. Check swaged fittings for cracks and other signs of wear. Check that cotterpins are secure and properly taped.

4.2.5 WINCHES. Perform maintenance in accordance with the manufacturers' instructions provided at commissioning. This involves periodic disassembly, cleaning, oiling, and greasing.

4.2.6 POWER SYSTEM. Details for most of the power system maintenance procedures are contained in the engine manual, with the following being a brief summary of items that should receive frequent attention. For long engine life and efficient operation, the complete maintenance schedule as set up in the engine manual should be followed.

4.2.6.1 Daily.

- (1) Check engine coolant level.
- (2) Check engine lube oil level.
- (3) Check transmission fluid level.

4.2.6.2 Every 100 Hours, or Twice a Season (whichever comes first.

- (1) Clean air intake filter.
- (2) Check V drive fluid level.
- (3) Check packing gland on stuffing box for excessive leakage.

4.2.6.3 Every 200 Hours, or Once a Season (whichever comes first).

- (1) Change engine lube oil.
- (2) Renew engine lube oil filter element.
- (3) Renew primary filter element, bleed fuel lines.

4.2.7 ELECTRICAL SYSTEM. Perform the following:

4.2.7.1 Daily (or at least frequently). Use the battery selector switch to connect one, and then the other, battery to the electrical panel and check the voltage read on the panel meter.

- (1) A fully charged, unused, or lightly loaded battery should read approximately 13.2 volts.
- (2) An unused or lightly loaded battery that reads 12 volts is in need of charge. A battery that reads under 12 volts under these conditions is in bad shape.
- (3) With the engine running and the battery under charge, the voltmeter reading should be between 13.5 and 15 volts. Readings above or below these figures are an indication of alternator or voltage regulator problems.

4.2.7.2 Monthly. Check the electrolyte levels in the batteries. If low, fill with pure distilled water.

4.2.7.3 Quarterly.

- (1) Remove, clean, and re-tighten battery terminals.
- (2) Clean battery surfaces with a solution of baking soda.
- (3) Apply a coating of petroleum jelly to the battery terminals.

4.2.8 STEERING SYSTEM. Maintenance of the steering system should be in accordance with the manufacturers' instructions that were provided at commissioning. Basically, the requirements are as follows:

4.2.8.1 Monthly.

- (1) Oil sheave bearings.

4.2.8.2 Quarterly.

- (1) Remove the access plate that is for the emergency tiller installation.
- (2) Install the emergency tiller, and check its operation.
- (3) Remove the emergency tiller and reinstall the access plate.

4.2.8.3 Annually.

- (1) Check and oil the steering cable.
- (2) Check and oil the roller chain.
- (3) Check and grease the pedestal shaft bearings.

4.3 LAYING UP

4.3.1 The most common reason for laying-up a yacht is for winter storage in cold climates. The following paragraphs are oriented to that purpose, but the procedures will also be of value, with winterizing procedures omitted, if it becomes necessary to lay-up the yacht for an extended period in a warm climate.

4.3.1.1 The tendency to close up and abandon a yacht at the end of the season, without proper laying-up procedures is a practice that should be avoided. Improperly winterized equipment can result in expensive repair bills and needless delays at the beginning of the new season. In addition, accumulations of gear left in a poorly ventilated yacht can either corrode, or generate a bumper crop of mildew. The owner must ensure that proper lay-up procedures are performed if the yacht is to be ready for recommissioning at the end of the lay-up period.

4.3.2 BEFORE YACHT IS HAULED

- (1) Consult engine manual instructions for winterizing the engine. Perform the appropriate in-water steps.
- (2) If it is intended to disconnect the shaft coupling during haul-out, do so at this time (paragraph 3.2.7.10).
- (3) Consult the manufacturers' instructions for winterizing any optional or owner-installed equipment. Perform appropriate procedures.

4.3.3 AFTER YACHT IS HAULED

- (1) Wash bottom.
- (2) Wash topsides, deck, and all other exterior fiberglass surfaces. Wax all except the non-skid surfaces.
- (3) Remove all sails, follow sailmakers' instructions in regard to cleaning, store in a dry place.
- (4) Remove all sheets and lines, clean, store in a dry place.

- (5) If mast has been removed from the yacht, remove all stays and shrouds from the mast. Wash the entire stay or shroud assembly, using fresh water and a stiff brush, dry thoroughly, and coil into large non-kinking coils. Store the coils in a dry place. Wash and wax all spars, coil halyards into non-kinking coils, and lash them to the mast. Store the mast either inside, or outside, with adequate support along its length.
- (6) If mast is to be left in place, remove the boom, clean and store as described above; clean swage fittings, toggles, etc. using fresh water and a stiff brush; apply a light coating of silicon grease, paying particular attention to the swage fittings where they connect to the cables.
- (7) Clean and lubricate all deck hardware that contain moveable parts. Follow manufacturers' instructions on winches.
- (8) Remove all gear such as books, documents, bedding, PFDs, anything moveable that is subject to rust, corrosion or mildew.
- (9) Remove all food supplies from lockers and ice chest. Wash out ice chest interior with a weak solution of clorox. Prop ice chest lid open.
- (10) Storage batteries should be fully charged, and both positive and negative terminals should be disconnected. The batteries may be either left aboard, or stored in a cool, dry place.

NOTE

SUB ZERO TEMPERATURES WILL NOT HARM
A FULLY CHARGED BATTERY.

- (11) Close all manual shut-offs for the propane system.
- (12) Winterize the hot and cold water system in accordance with manufacturers' instructions.
- (13) Winterize the head system in accordance with manufacturers' instructions.
- (14) Remove all electronic gear that may require servicing during the winter.
- (15) Remove fire extinguishers for weighing, checking, and any necessary recharging. If an automatic

fire extinguishing system is installed, return the cylinders to the yacht and re-install as soon as possible.

- (16) If security is likely to be a problem, remove easily removed items such as compasses and radio transmitters, store in a safe place.
- (17) If cushions are left aboard, bring cockpit cushions below and place all cushions on edge to encourage ventilation.
- (18) Leave all interior lockers open to encourage ventilation.
- (19) Ensure that cockpit and deck scuppers are open and free.
- (20) If the boat is to be covered, ensure that the cover is installed in such a way as to provide adequate ventilation, and that the cover is not permitted to chafe against portions of the hull.
- (21) If the boat is not to be covered, ensure that mechanisms such as winches and steering pedestals are provided with adequate covers.
- (22) If spars are to remain stepped, snub all shrouds and halyards to minimize noise and wear.

4.4 FITTING OUT

4.4.1 Fitting out is the performance of the tasks required to place a yacht into service after a lay-up period. Since it is in effect, the recommissioning of the vessel, the procedure provided in Section 3 (Commissioning) of this manual should once again be followed along with the following additions:

- (1) Follow the procedure outlined in the engine manual for placing the engine back in service after layup.
- (2) Follow manufacturers' instructions for placing the following equipment back in service:

Auxiliary generator (if installed)

Pressure water system

Hot water system

Head system

Steering system

Winches

Other optional systems

- (3) If mast was removed during lay-up, the tuning procedures outlined in paragraphs 3.1.2 and 3.1.3 should be performed in addition to the steps in the commissioning procedure.
- (4) Make a complete inspection of all standing and running rigging. Look for signs of stress or cracking at swaged fittings; evidence of fraying, chafing, kinking; cotterpins secure and taped. Pay particular attention to the wire-to-rope splice on halyards.

WARRANTY

PEARSON YACHTS are carefully inspected and tested prior to shipment from our factory.

Because of this attention to quality control, our warranty is one of the most effective in the industry.

More important, however, is the knowledge and cooperation you as the owner, and we as the manufacturer, receive from the PEARSON Dealer Organization.

Your warranty is included in your file of ship's papers.

Be sure to follow the instructions on filling out and forwarding. You can rest assured that our policy towards your warranty will result in your satisfaction.